DVORAK: EVEN MORE ON THE "WOMEN'S COMPUTER"

California's Computer Magazine NOV. 1988 • 49

# MICROTIMES™

FREE

COME SEE US AT COMDEX

## @MAC WORK:

- MICROPHONE II: Easy, Powerful Telecommunications Software
- MOVING GRAPHICS BETWEEN MACS AND PCS

## LAPTOPS:

- Zenith 286 SupersPort
- File Transfer With Flying Dutchman

## SPECIAL SECTION:

Academic Computing

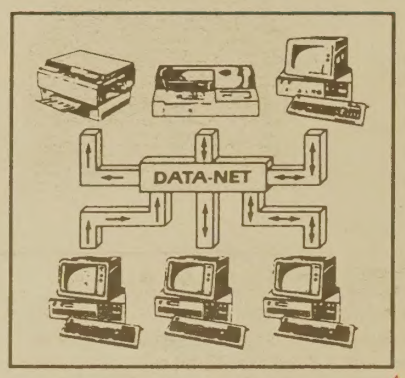
JOHN WARNOCK OF ADOBE

# ADOBE

# And The PostScript Future

# Peripheral Sharing: Make the right connections

## Data Manager/Data-Net Products.




IMC products are non-intrusive and transparent to users who share peripherals such as printers and plotters. Every Data Manager product is buffered with a minimum of 256K of memory expandable to 1 Megabyte. 100% compatibility with RS-232 and Centronics interfaces. All products offer 1 year warranty.

### Data Strip

NEW!

Small footprint product with RJ11 RS-232 port connections, allows 5 users to simultaneously share a single printer. Use convenient telephone twisted pair wiring to link to a unit requiring only 2″ x 8″ of desk space. DATA-STRIP automatically adjusts to X-on/X-off or DTR protocols, and requires no other switch settings or software.

Part No. DM06
Mfr. Sugg. Ret. $495
**FRY'S PRICE $395**

### DATA-NET 1551

Each of the DATA-NET 1551 six RS-232 ports can be individually configured for either input or output functions. The unit's resident software, operator controls and bi-directional port operation make it an extremely flexible networking product.

Part No. DM15
Mfr. Sugg. Ret. $695
**FRY'S PRICE $479**

### Data Manager Plus

Up to 5 users simultaneously share one printer or plotter. RS-232 Serial interface and connectors.

Part No. DM07
Mfr. Sugg. Ret. $595
**FRY'S PRICE $429**

### Data Manager 4 x 4

Functionally similar to the DATA-NET 1551, the 8-Port DATA MANAGER 4 x 4 combines RS-232 Serial and Centronics parallel interfacing in a single peripheral sharing unit.

Part No. DM44
4 Serial and 4 parallel ports
Part No. DM45
6 Serial and 2 parallel ports
Part No. DM46 – 8 serial ports
Mfr. Sugg. Ret. $895
**FRY'S PRICE $629**

| DATA MANAGER FEATURES | DATA STRIP | PLUS | 1551 | 4X4 |
|---|---|---|---|---|
| **HARDWARE COMPATIBILITY:** IBM, DEC, Apple, H-P, minis, micros | YES | YES | YES | YES |
| **SOFTWARE COMPATIBILITY:** DOS, UNIX, XENIX, others | YES | YES | YES | YES |
| **NUMBER OF PORTS** | 6 | 6 | 6 | 8 |
| Type of Port | Serial | Serial | Serial | Serial & Parallel |
| Input or Output | 5 Inputs 1 Output | 5 Inputs 1 Output | User Select | User Select |
| Cascading | | YES | YES | YES |
| **Speed of throughput:** | | | | |
| Maximum Speed | 38.4K | 38.4K | 38.4K | 19.2K |
| Maximum simultaneous speed | 19.2K | 19.2K | 19.2K | 19.2K |
| Speed selection jumpers | YES | YES | YES | YES |
| Bi-Directional throughput | | | YES | YES |
| **BUFFERING CAPABILITIES:** | | | | |
| Dynamic Memory Allocation | YES | YES | YES | YES |
| 256K RAM standard | YES | YES | YES | YES |
| **MEMORY EXPANSION:** User upgradeable to 1 Megabyte | YES | YES | YES | YES |
| **RESIDENT COMMANDS & USER SELECTABLE CONTROL:** | | | | |
| End of Data Timeouts (seconds) | | 15 to 120 | 15 to 60 | 15 to 60 |
| Software EDD command | | | YES | YES |
| Port Select Switch, Data PBX compatible | | | YES | YES |
| **Next Available Port:** | | | | |
| Switch control | | | YES | YES |
| Software command | | | YES | YES |
| **SOFTWARE COMMANDS:** | | | | |
| Collate, 1 to 99 copies | | | YES | YES |
| Lock-on | | | YES | YES |
| Data Hold | | | YES | YES |
| Cancel | | | YES | YES |
| Port Selection | | | YES | YES |
| Pause | | | YES | YES |
| **APPLICATION SOFTWARE:** | | | | |
| EasyLAN (file transfer) | | | YES | YES |
| DUET (RAM resident software commands/spooling) | | YES | YES | YES |

1. Available as: (8 Serial), (4 Serial & 4 Parallel, (6 Serial & 2 Parallel)
2. Any number of ports can be svitched to 1 output. Any port, serial or parallel, can be elected as an input or an output port.

## Auto-T Products

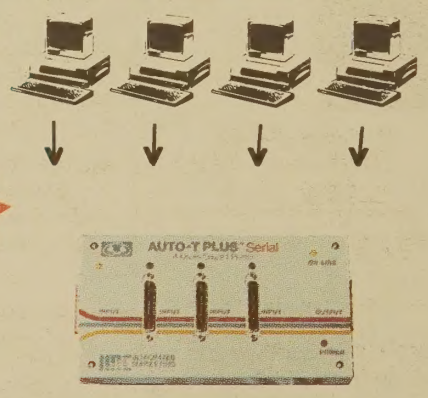
### Auto-T Plus

Total automatic alternative to cumbersome manual switches for printer/plotter sharing applications. Unit continuously scans input lines and forwards data from the first computer in the queue to the printer or plotter. Four inputs (serial or parallel ports) share a printer or plotter. Includes free Softspool software for background spooling and printer control; change fonts, modes, landscape or portrait print . . . all from a simple pop-up menu. LEDs show port activity; timeout selectable from 1 sec. to 5 mins. Connect multiple units to serve as many users as you need to share expensive laser printers.

NEW!

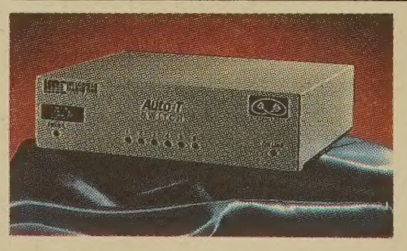
Part No. CCAT-S
5 Serial Ports
Part No. CCAT-P
5 Parallel Ports
Mfr. Sugg. Ret. $195
**FRY'S PRICE $149.95**

**MADE IN U.S.A.**




### Auto-T Data Switch

Similar to Auto-T Plus (less software), but with 6 input ports, including both serial and parallel interfacing in the same unit.



| Part No. | Input Ports | Output Ports | Mfr. Sugg. Ret. | Special Intro Price |
|---|---|---|---|---|
| CCAT-3 | 3 Ser/3 Par | 1 Serial | $295 | $195 |
| CCAT-4 | 3 Ser/3 Par | 1 Parallel | $295 | $195 |
| CCAT-5 | 6 Serial | 1 Serial | $249 | $189.95 |
| CCAT-6 | 6 Parallel | 1 Parallel | $249 | $189.95 |

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# Quality Products

## Fastest 286 System. 21 MHz

**21 MHz on speed test**, 18 MHz on Norton SI (advance Ver. 4), Faster than most 386-16 Systems. 512K, 60 N/S RAM on 1 meg board, 360 Fl. Dr. & Controller, Monographic pr. card & Monitor, AT K.B., Fully assembled & tested, 48 Hour burn-in.

**$1269**

### 286-12

16 MHz on speed test, 13.7 Nortion SI, 512K Mono System, same configuration as above.

**$899**

### 286-10

13 MHz on speed test, 11.5 Nortion SI, 512K Mono System, same configuration as above.

**$799**

## AMERICAN SYSTEMS

### 10 MHz Turbo XT

256K, 1 Fl. Dr., Monochrome System with Monitor & K.B.

**$469**

### 10 MHz Barebones XT System

**$149**

## Fastest 386 on Face of Earth

**32 MHz on speed test.*** 28 MHz on Norton SI (advance version 4.0), 1 Meg memory on board, expandable up to 8 Meg on motherboard, 8 meg on 32-bit expansion card, 1.2 MB Fl. Dr. with Hard & Floppy Controller, Monographic pr. card, Amber Monitor, AT K.B., Fully assembled and tested. 48-hour burn-in.

*Must be 2 MB memory on board to get 32 MHz and 28 Norton SI.

**$2198**

### 386-16

21 MHz on speed test, 1 Meg Memory, SR/PR ports, 1.2 Fl. Dr., HD/Fl. Contr., MGP & Monitor, AT K.B., fully assembled & tested, 48 hour burn-in.

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### 386 MOTHERBOARDS

5M 386-16 w/0K. 21 MHz on speed test . . . **$998**
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### 286 MOTHERBOARDS

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**$1569**

**Portable 286-10**
13 MHz on speed test.
**$1169**

**Portable 286-12**
16 MHz on speed test.
**$1199**

**Portable 10 MHz XT** **$928**
256K Monochrome System

### 386 Portable

**Fastest 386 Portable on Face of Earth.** 32 MHz on speed test. 28 MHz on Norton SI, 1 Meg memory on board expandable up to 8 meg on board, 8 Meg on 32-bit expansion card, 1.2 MB Fl. Dr. with Hard & Floppy Controller, Portable chassis with built-in 200W P/S, 9" Amber Monitor, 84 Keys enhanced Klicking K.B. Fully assembled and tested. 48-hour burn-in. **$2469**

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1 Meg System

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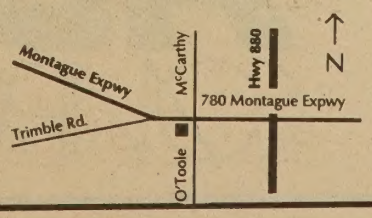

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Panasonic 594 ..... 525
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**Lowest Prices for MAC's, Compatibles & Printers In Silicon Valley**-*San Jose Mercury News July 31, 1988*

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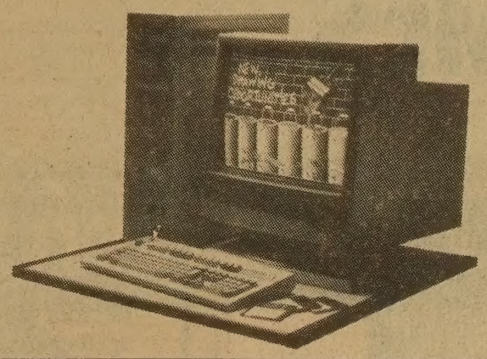
Lowest Prices for Mac's, Compatibles & Printers In Silicon Valley
—San Jose Mercury News July 31, 1988



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7595A, 8 pen, A-E . . . . . **8,044**
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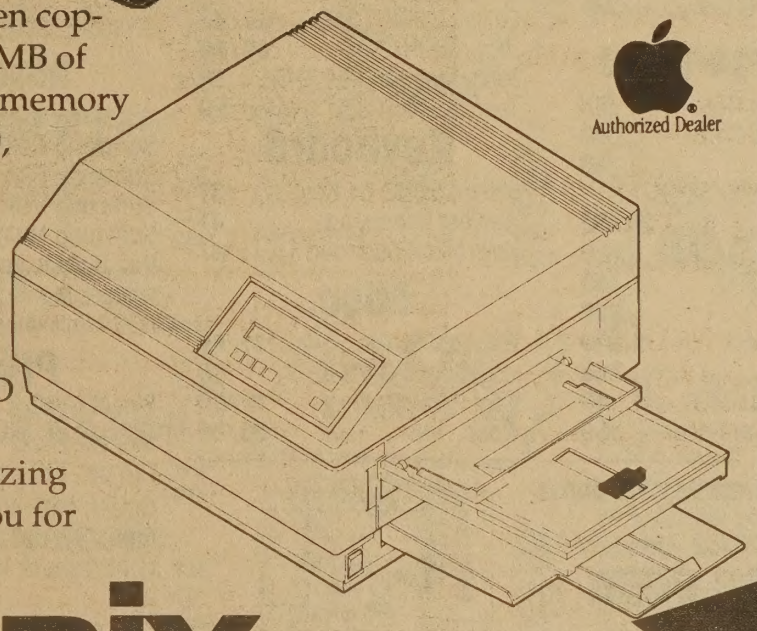

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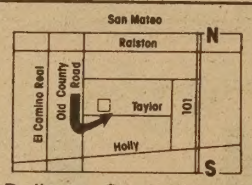


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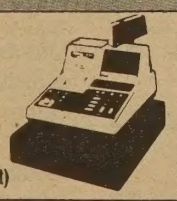

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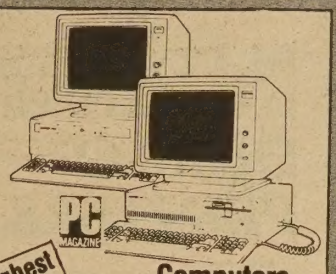

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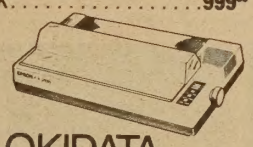

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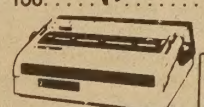

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| 3550 | 799.88 |
| 2200 | 358.88 |
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| Other models | Call |

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|---|---|
| 6100 | 355.88 |
| 6300 | 669.88 |
| 5510 Color | 359.88 |

**Canon**

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|---|---|
| BJ 130 | 748.88 |
| LPBP-8 Model II | 1688.88 |
| Other Models | Call |

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| Daisymax 320 | 999.88 |
| DX 2100F | 379.88 |
| DL 3400 Color | 789.88 |
| DL 3300 | 599.88 |
| DX2300 | 478.88 |
| DL2400 | 799.88 |

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| Mitsubishi Diamond Scan EGA 920x580 | 499.88 |
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| Sharp 300 | 1299.88 |
| Panasonic KX 15 | 1369.88 |

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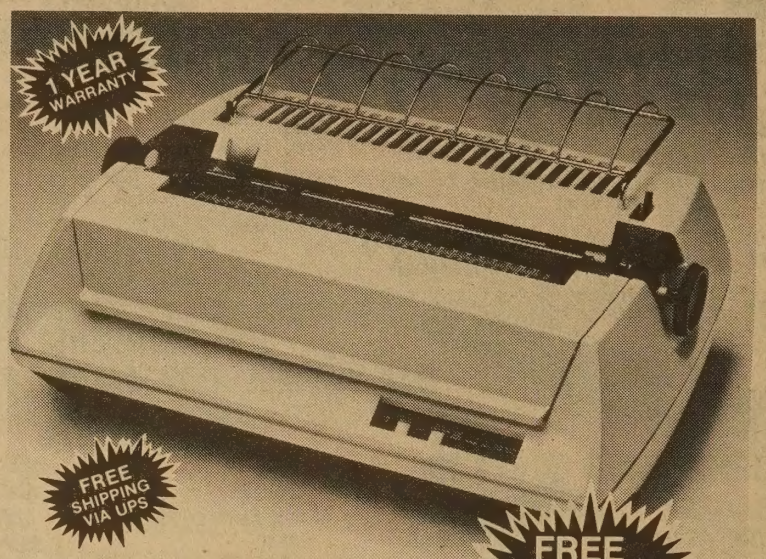
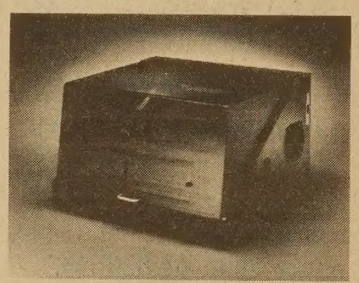
These printers are highly recommended for all your business needs: high quality direct mail letters, company reports, mailing labels and envelopes. They're also great for multipart forms such as checks, invoices and C.O.D. tags. And the best thing is, these printers are backed by a full one year warranty from the company that has been refurbishing Diablo printers for over 6 years — The Printer Works in Hayward, California.

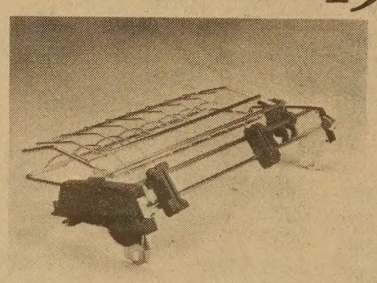



MODEL 630/II-A $495

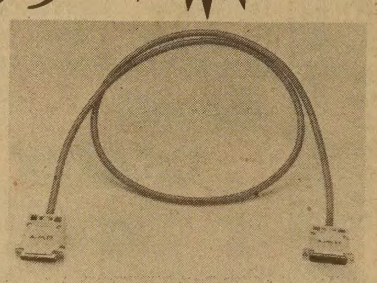
*Accessories Available:*



SOUND ENCLOSURE $195



FORMS TRACTOR $49



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# CALENDAR OF EVENTS

**October 15 Hard Disk 1 Seminar.** Santa Clara. Silicon Valley Computer Society. Call: (408) 226-0507.

**October 15 Computer Show.** Solano County Fairgrounds, Vallejo. East West Computer Shows. Call: (415) 388-8893

**October 15 Shop Till Ya Drop Computer Swap.** Santa Clara Convention Center. Microshows. Call: 1-800-433-7469.

**October 15 Vallejo Computer Show & Sale.** Vallejo. East West Computer Shows. Call: 1-800-344-3773.

**October 17 Hard Disk 2 Seminar.** Santa Clara. Silicon Valley Computer Society. Call: (408) 226-0507.

**October 17-21 The 1988 Electronic Printer And Publishing Conference Series.** San Jose. CAP International Call: Jean O'Toole or Kristin Fischer, (617) 982-9500.

**October 18 dBase III Plus Seminar.** Sacramento. American Management Association. Call: (212) 903-7936.

**October 18-21 Local Area Networks: Implementation & Configuration Course.** San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166

**October 18-19 Borland Professional Series Seminar (Quattro, Paradox, SideKick+, Sprint).** Diamond Software, Oakland. Diamond Software. Call: (415) 430-3095

**October 19 Developing Expert Systems For Financial Management Seminar.** San Francisco. Prolog Financial Systems. Call: (415) 441-3117.

**October 19-21 Image Scanning & Processing Conference.** Novotel Hotel, Amsterdam, Holland. CAP International. Call: Martha Johnson, (617) 982-9500.

**October 19 Personal Information Manager Demos.** Sacramento. Sacramento PC Users Group. Call: Jackie Janssen, (916) 383-6900.

**October 20 How To Build Your Own XT/AT Compatible Computer.** Fort Mason Center, San Francisco. Datamed. Call: (415) 284-1024.

**October 21 RevFaire '88.** Hyatt Regency-Embarcadero, San Francisco. Bay Area Revelation Users Group. Call: Margaret Steyer, (415) 986-1717.

**October 21-22 Ninth Annual Fall Cue Conference:**

*continued*

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## EXP 80386/20 System

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- 20 MHz 0 wait clock speed (Micronics CPU Board)
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- Industry standard PHOENIX Bios
- LIM (EMS memory)/Diagnostic S/W standard
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- Norton SI:23, Landmark speed:26
- 80287 or 80387 co-processor socket
- 1.2 MB floppy drive standard
- Hard & Floppy disk controller standard
- 230W power supply standard
- Keytronics 101 enhanced keyboard standard
- 1 serial/1 parallel/Game port standard
- Real time clock standard
- Hercules compatible monochrome card standard
- 12″ Amber TTL monitor standard
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| 40MB (ST251) Hard Disk | 375 |
| 80MB (ST4096) Hard Disk | 675 |
| 32KB CACHE memory | 195 |
| Tower case | 175 |

## EXP 80286 System

- 512K memory, expandable to 1MB
- 80286-10 cpu, Phoenix Bios
- 6/10 MHz 0 wait. Norton SI:11.5
- Keyboard (84 Key)
- 1.2 MB Floppy Drive
- Printer Port
- Hard/Floppy Disk Controller
- Real Time Clock
- Hercules Compatible Mono Card
- 12″ tilt & swivel monitor
- Keyboard
- Hardware Reset Switch
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| 640KB Memory Upgrade | 70 |
| Tower Case | 175 |

## EXP 8088 System

- 512K memory - expandable to 640K.
- 4.77/10 MHz clock speed.
- 360KB floppy drive.
- Serial port.
- Printer port.
- Game port.
- Real time clock.
- Hercules compatible mono card.
- 12″ Tilt & Swivel amber monitor.
- Keyboard.
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| 30MB hard disk | $300 |
| 2nd 360KB floppy | $75 |

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- Printer port
- Hard/floppy controller
- Real time clock
- Hercules compatible mono card
- 12″ amber TTL monitor
- Keyboard (84 keys)
- Hardware reset switch
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- Surface mount technology
- Most accurate 2,7 RLL data separator
- Drives with up to 16 head & 4096 cylinder

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- 8 built-in NLQ fonts
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- Push button control panel
- Paper parking mechanism
- Tractor and friction feed
- IBM Proprinter/Epson emulation

**Free Cable**
**$189**

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- 1 printer port
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| JC 14″ TTL | 89 |
| JC 14″ EGA | 339 |
| Nanao Flexscan | 545 |
| 14″ TTL white soft | 125 |

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| Multi I/O (FDC,S,P,G,C) | $55 |
| Mono graphic/printer | 55 |
| Color graphic | 45 |
| 1.2MB/720K/1.4MB FDC | 55 |
| 1200B Modem | 59 |
| 2400B Modem | 99 |
| 8088 Hard disk cont. | 59 |
| 8088 Hard disk RLL cont. | 65 |
| 80286 Controller MFM/RLL | 119/145 |
| Everex 3MB EMS (Lim 4.0) | 85 |
| Everex VGA | 245 |
| Mono 132 Column/Printer | 59 |
| Everex EGA (800 x 600) | 150 |
| Everex EMS multifunction | 65 |

## PRINTERS

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| Ricoh daisywheel (22 cps, 132 col.) | $199 |
| Epson LQ 500 | 385 |
| Qume Scrip Ten Laser (Postscript. 3MB Memory, 10ppm) | 3,495 |
| Panasonic 1091i | 199 |
| NEC P2200 24 pin | 349 |
| Epson LX-800 | 209 |
| Star NX-1000 | 189 |

## DISK DRIVES

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|---|---|
| Fujitsu 360K/1.2MB | $69/89 |
| 3.5″ 720KB/1.4MB | 79/99 |
| ST225/238 hard disk | 225/239 |
| ST251/ST251-1 hard disk | 355/435 |
| ST4096 hard disk | 675 |
| ST125/138 (3.5″, 28ms) | 255/355 |
| Micropolis 70MB | 850 |

## CPU BOARDS

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|---|---|
| 8088 cpu bd (4.77/8MHz) | $75 |
| 8088 cpu bd (4.77/10MHz) | 79 |
| 80286 cpu bd (6/10MHz) | 245 |
| 80286 cpu bd (6/12MHz) | 299 |
| 80286 cpu bd (8/20MHz) | 495 |
| 80386 cpu bd (8/20MHz) | 1,555 |

(1 MB memory, 80386-20 CPU, EMS S/W, Diagnostic S/W)

## MISCELLANEOUS

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| Keytronics 101 keyboard | 55 |
| Jr. Case/150W PS | 38/43 |
| Case/230W PS | 55/65 |
| Logi bus/serial mouse | 75 |
| DSDD diskette 1 BOX | 4 |
| DSHD diskette 1 BOX | 9 |
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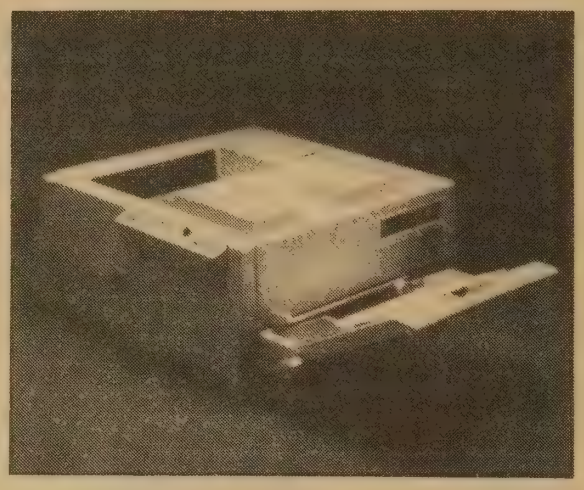

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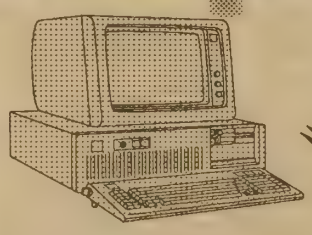

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## CALENDAR OF EVENTS *continued*

**Chalkboards To Motherboards, Teaching Technology In Transition.** San Jose. Computer-Using Educators. Call: EITHER, (818) 355-8807.

**October 22 Hard Disk Backup 1 Seminar.** Santa Clara. Silicon Valley Computer Society. Call: (408) 226-0507.

**October 22 Shop Till Ya Drop Computer Swap.** Oakland Convention Center. Microshows. Call: 1-800-433-7469.

**October 22-23 First Exposure To HyperCard Class.** Hayward. California State University at Hayward. Call: Scott, (415) 237-4445.

**October 22 How To Build Your Own PC/XT Or AT Clone Computer For As Little As $600 Class.** Los Altos Hills. Royal H. Maul. Call: (416) 948-2587.

**October 24 MS Word Users Group Meeting:** Linda Cavenaugh of Softcraft will speak. Call: (408) 356-8805.

**October 24 Women's Special Interest Group Meeting: "What It Means To Be In Sales In A High Tech Industry."** Hewlett-Packard, 5301 Stevens Creek Blvd., Santa Clara. Women's Special Interest Group. Call: Rita Zokaei, (415) 574-8225.

**October 24 Fonts By Softcraft Demo.** Sunnyvale. Microsoft Word SIG. Call: Bill West, (408) 356-8805.

**October 26 Learn The Essentials Of DOS Class.** Fort Mason Center, San Francisco. Datamed. Call: (415) 284-1024.

**October 26-28 Ion Deposition Printing Conference.** Novotel Hotel, Amsterdam, Holland. CAP International. Call: (617) 982-9500.

**October 28-30 Taking Care Of Business Fall Conference.** Westin Hotel Galleria, Dallas, TX. Independent Computer Consultants Ass. Call: Barry Dunnegan or Thomas D. Gorman, (314) 241-7704.

**October 29 Hard Disk Backup 2 Seminar.** Santa Clara. Silicon Valley Computer Society. Call: (408) 226-0507.

**October 29 Shop Till Ya Drop Computer Swap.** Alameda County Fairgrounds. Microshows. Call: 1-800-433-7469.

**October 29 Computer Show.** Luther Burbank Center, Santa Rosa. East West Computer Shows. Call: (415) 388-8893

**October 29 How To Build Your Own PC/XT Or AT Clone Computer For As Little As $600 Class.** Santa Rosa. Royal H. Maul Call: (707) 527-4371.

**October 30-November 2 From Vision To Payoff: Breakthroughs To Growth, IIA's 20th Annual Convention And Exhibition.** Omni-Shoreham, Washington, DC. Information Industry Association. Call; Michael Atkin, (202) 639-8262.

**October 31-November 4 The Folio:Show/Fall, The 14th Annual Publishing Conference And Exposition.** New York Hilton, NY. Folio magazine. Call: (203) 358-9900 for registration.

**November 1-3 Macintosh Business Conference & Exposition.** Anaheim. Apple Computer, Inc. Call: 1-800-262-3378.

*continued*

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AST PREMIUM/386 140MB EGA (640x350) SYSTEM * ..... 4,089
AST PREMIUM/386 140MB VGA (800x600) SYSTEM * ..... 4,339

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TOSHIBA T1200FB DUAL FLOPPY/BACKLIT W/ 2400-BAUD MODEM ..... 1,675
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HARD DISK UPGRADE KIT FOR T1200F ..... 990
BACKLIT UPGRADE KIT FOR T1200F/T1200H ..... 395
TOSHIBA T3200 W/ 2400-BAUD INTERNAL MODEM ..... 3,685
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NEC MULTISPEED EL DUAL FLOPPY/BACKLIT ..... 1,425

## DOT-MATRIX/ INKJET PRINTERS

DICONIX 150P PARALLEL PRINTER ..... 365
DICONIX 150S SERIAL PRINTER ..... 395
DICONIX 150 INK CARTRIDGE (10-PACK) ..... 99.50
DICONIX 300P 132-COL PARALLEL PRINTER ..... 575
DICONIX 300S 132-COL SERIAL PRINTER ..... 595
DICONIX 300 INK CARTRIDGE (10-PACK) ..... 139.50
TOSHIBA P321SL 80-COLUMN ..... 445
TOSHIBA P321SLC 80-COLUMN COLOR PRINTER ..... 575
TOSHIBA P341SL 132-COLUMN ..... 595
TOSHIBA P341 132-COLUMN ..... 565
TOSHIBA P351SX 132-COLUMN ..... 965
PR-HP-PAINTJET ..... 975
HP DESKJET ..... 725

## LASER PRINTERS/ SUPPLIES

EASY SHARE PRINTER SHARING DEVICE ..... 635
PANASONIC LASER PARTNER ..... 1,585
PANASONIC LASER PARTNER TONER ..... 45
PANASONIC LASER PARTNER LEGAL CASSETTE TRAY ..... 75
PANASONIC LASER PARTNER 1MB RAM BOARD ..... 325
PANASONIC LASER PARTNER ENVELOPE CASSETTE ..... 85
HP SERIES II ..... 1,675
HP SERIES II TONER CARTRIDGE ..... 115

## PLOTTERS

HP 7440A COLOR PLOTTER ..... 1,045
HP 7475A A/B SIZE, 6-PEN ..... 1,425
HP 7550A A/B SIZE, 8-PEN, CUT-SHEET ..... 3,025
HP 7570A DRAFTPRO C/D SIZE, 8-PEN, CUT-SHEET ..... 3,075
HP 7595A DRAFTMASTER A/E SIZE, 8-PEN, CUT-SHEET .. 7,625
HP 7596A DRAFTMASTER II A/E SIZE, 8-PEN ..... 9,165
HOUSTON INSTRUMENTS PC695A A/B SIZE, 4-PEN ..... 629
HOUSTON INSTRUMENTS DMP29 A/B SIZE, 8-PEN ..... 1,675
HOUSTON INSTRUMENTS DMP41 C/D SIZE, 1-PEN ..... 2,275
HOUSTON INSTRUMENTS DMP42 C/D SIZE, 1-PEN ..... 2,275
HOUSTON INSTRUMENTS DMP51 C/D SIZE, 1-PEN ..... 2,995
HOUSTON INSTRUMENTS DMP51MP C/D SIZE, 14-PEN ... 3,295
HOUSTON INSTRUMENTS DMP52 C/D SIZE, 1-PEN ..... 3,295
HOUSTON INSTRUMENTS DMP56A A/E SIZE, 1-PEN ..... 4,175
HOUSTON INSTRUMENTS DMP56C A/E SIZE, 1-PEN ..... 4,325
HOUSTON INSTRUMENTS DMP61 A/D SIZE, 1-PEN ..... 3,565
HOUSTON INSTRUMENTS DMP62 A/E SIZE, 1-PEN ..... 4,935
HOUSTON INSTRUMENTS MP-6 MULTI-PEN UPGRADE ..... 795
HOUSTON INSTRUMENTS MP-60 MULTI-PEN UPGRADE ... 750
HOUSTON INSTRUMENTS SCAN-CAD FOR DMP50/60 ..... 2,585
HOUSTON INSTRUMENTS 1MB BUFFER FOR DMP61/62 .... 995
CALCOMP 1023 A/D SIZE, 8-PEN ..... 3,735
CALCOMP 1023 1MB BUFFER BOARD ..... 995
CALCOMP 1023 2MB BUFFER BOARD ..... 1,450
CALCOMP 1042GT A/E SIZE, 8-PEN ..... 7,589
CALCOMP 1043GT A/E SIZE, 8-PEN ..... 6,819
CALCOMP 1044GT A/E SIZE, 8-PEN ..... 11,175

## DIGITIZERS

CALCOMP 12x12 ..... 345
SUMMASKETCH PLUS 12x12 ..... 365
SUMMASKETCH PLUS 12x18 ..... 689
KURTA IS/ONE 8.5x11 W/ CORDED PEN ..... 345
KURTA IS/ONE 8.5x11 W/ CORDED CURSOR ..... 359
KURTA IS/ONE 8.5x11 W/ CORDLESS PEN OR PUCK ..... 395
KURTA IS/ONE 12x12 W/ CORDED PEN ..... 425
KURTA IS/ONE 12x12 W/ CORDED CURSOR ..... 445
KURTA IS/ONE 12x12 W/ CORDLESS PEN OR PUCK ..... 479
KURTA IS/ONE 12x17 W/ CORDED PEN ..... 665
KURTA IS/ONE 12x17 W/ CORDER CURSOR ..... 685
KURTA IS/ONE 12x17 W/ CORDLESS PEN OR PUCK ..... 725
MSC TECHNOLOGIES OMNIMOUSE (OPTO-MECHANICAL) 55
LOGITECH C7 MOUSE ..... 65
MICROSOFT BUS MOUSE ..... 119
MICROSOFT SERIAL MOUSE ..... 119

## SCANNERS/ FAX MACHINES

MICROTEK MSF300C (FLATBED) ..... 1,295
MICROTEK READRIGHT OCR SOFTWARE ..... 375
BROTHER FAX-100 (DUPLICATES AS A COPY MACHINE) . 945
DATACOPY PC IMAGE INTERFACE KIT ..... 425

## MODEMS/COMMUNICATIONS SOFTWARE

US ROBOTICS COURIER HST 9600-BAUD EXTERNAL ..... 695
TOSHIBA 1200-BAUD INTERNAL FOR ALL LAPTOPS ..... 245
2400-BAUD MODEM WITH SERIAL PORT FOR LAPTOPS * . 395
MEGAHERTZ 1200-BAUD INTERNAL FOR T1000 ..... 179
MEGAHERTZ 2400-BAUD INTERNAL FOR T1000 ..... 285
MEGAHERTZ 1200-BAUD INTERNAL FOR TOSHIBA ..... 179
MEGAHERTZ 2400-BAUD INTERNAL FOR TOSHIBA ..... 285
MEGAHERTZ 1200-BAUD W/ 1MB EMS MEMORY FOR T1100+/T1200 ..... 815
MEGAHERTZ 1200-BAUD W/ 1MB EMS MEMORY FOR T3100 ..... 815
MEGAHERTZ 1200-BAUD INTERNAL FOR NEC LAPTOPS .. 179
MEGAHERTZ 2400-BAUD INTERNAL FOR NEC LAPTOPS .. 285
MEGAHERTZ 1200-BAUD INTERNAL FOR COMPAQ PORTABLE III ..... 179
MEGAHERTZ 2400-BAUD INTERNAL FOR COMPAQ PORTABLE III ..... 285
COMPLUS 2400i 2400-BAUD INTERNAL MODEM W/ SOFTWARE ..... 129
ANCHOR AUTOMATION 1200E EXTERNAL ..... 135
ANCHOR AUTOMATION 2400i INTERNAL W/ SOFTWARE . 139
ANCHOR AUTOMATION 2400E EXTERNAL ..... 165
ANCHOR AUTOMATION 1200PS INTERNAL FOR PS/2 ..... 175
ANCHOR AUTOMATION 2400PS INTERNAL FOR PS/2 ..... 225

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COREFAST BACKUP UTILITY SOFTWARE * ..... 99
AST HARD DISK 16-BIT CONTROLLER ..... 115
CDC 40MB (28ms) HALF-HEIGHT INTERNAL ..... 575
CDC 40MB (28ms) FULL-HEIGHT INTERNAL ..... 795
CDC 90MB (16ms) HALF-HEIGHT ESDI INTERNAL ..... 1,100
CDC 90MB (16ms) HALF-HEIGHT ESDI INTERNAL W/ ADAPTER ..... 1,285
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CDC 160MB (18ms) FULL-HEIGHT ESDI INTERNAL W/ ADAPTER ..... 1,675
CDC 320MB (15ms) FULL-HEIGHT ESDI INTERNAL W/ ADAPTER ..... 2,515
SEAGATE ST225 20MB (65ms) HALF-HEIGHT INTERNAL (PC/XT) ..... 215
SEAGATE ST225 20MB WITH CONTROLLER ..... 265
SEAGATE ST238 30MB (65ms) HALF-HEIGHT INTERNAL (PC/XT) ..... 235
SEAGATE ST238 30MB WITH CONTROLLER ..... 289
SEAGATE ST125 20MB MFM 3.5" HALF-HEIGHT INTERNAL ..... 289
SEAGATE ST138R 30MB RLL 3.5" HALF-HEIGHT INTERNAL ..... 295
SEAGATE ST138 30MB MFM 3.5" HALF-HEIGHT INTERNAL ..... 325
SEAGATE ST251 40MB (39ms) HALF-HEIGHT INTERNAL ... 335
SEAGATE ST251-1 40MB (28ms) HALF-HEIGHT INTERNAL 419
SEAGATE ST4038 30MB (28ms) FULL-HEIGHT INTERNAL .. 365
SEAGATE ST4096 80MB (28ms) FULL-HEIGHT INTERNAL .. 565
MINISCRIBE 3650 40MB (85ms) HALF-HEIGHT INTERNAL . 335
MINISCRIBE 3053 40MB (25ms) HALF-HEIGHT INTERNAL . 549
MINISCRIBE 6053 40MB (28ms) FULL-HEIGHT INTERNAL .. 625
MINISCRIBE 6085 71MB (28ms) FULL-HEIGHT INTERNAL .. 675
MINISCRIBE 6128 110MB (28ms) RLL FULL-HEIGHT INTERNAL ..... 725
CORE 90MB ESDI INTERNAL HC FOR PS/2 60 & 80 ..... 2,285
CORE 90MB EXTERNAL HC FOR PS/2 60 & 80 ..... 2,565
CORE 150MB ESDI INTERNAL HC FOR PS/2 60 & 80 ..... 3,809
CORE 260MB ESDI INTERNAL HC FOR PS/2 60 & 80 ..... 4,575
CORE 310MB ESDI INTERNAL HC FOR PS/2 60 & 80 ..... 4,950
WESTERN DIGITAL WD1006-WAH 1:1 INTERLEAVE 16-BIT HD ADAPTER ..... 195
WESTERN DIGITAL WD1003-WAH 16-BIT HD ADAPTER ..... 99
WESTERN DIGITAL WD1002S-WX2 8-BIT CONTROLLER ..... 69

## REMOVABLE INTERNAL HARD DRIVES

IOMEGA BERNOULLI A120H 20MB SINGLE ..... 1,395
IOMEGA BERNOULLI A110H 10MB SINGLE ..... 945
IOMEGA BERNOULLI PC3B50 BOOTABLE ADAPTER ..... 195

## FLOPPY DRIVES

POWERHOUSE 1.2MB EXTERNAL FLOPPY FOR TOSHIBA LAPTOPS ..... 245
POWERHOUSE 360K EXTERNAL FLOPPY FOR TOSHIBA LAPTOPS ..... 245
POWERHOUSE 720K 3.5" EXTERNAL FLOPPY FOR ALL COMPUTERS ..... 295
POWERHOUSE 1.44/720K 3.5" EXTERNAL FLOPPY FOR ALL COMPUTERS ..... 295
TOSHIBA 1.2MB INTERNAL FLOPPY FOR IBM AT OR COMPATIBLES ..... 85
TOSHIBA 1.44MB/720K 3.5" INTERNAL FLOPPY KIT ..... 125
SYSGEN 1.2MB/360K EXTERNAL FOR PS/2 (ALL MODELS) W/ ADAPTER ..... 285
SYSGEN 5.25 BRIDGE FILE CONTROLLER FOR ABOVE ..... 45

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FUJITSU 1.44MB/720K 3.5" INTERNAL FLOPPY KIT ..... 125
FUJITSU 360K INTERNAL HALF-HEIGHT - GRAY BEZEL ..... 75
FUJITSU 360K INTERNAL HALF-HEIGHT - BLACK BEZEL ..., 75

## TAPE BACK-UPS

SYSGEN SMART IMAGE 60 INTERNAL (USES CT600H CASSETTE) ..... 395
IRWIN 20MB HALF-HEIGHT INTERNAL FOR IBM AT ..... 325
IRWIN 40MB HALF-HEIGHT INTERNAL FOR IBM AT ..... 455
IRWIN 20MB INTERNAL FOR IBM PS/2 ..... 325
IRWIN 40MB INTERNAL FOR IBM PS/2 ..... 425
IRWIN 20MB EXTERNAL FOR PS/2 ..... 425
IRWIN 40MB EXTERNAL FOR PS/2 ..... 555
IRWIN 64MB INTERNAL FOR AST PREMIUM/286 ..... 585
IRWIN 64MB EXTERNAL W/ POWER SUPPLY FOR ALL COMPUTERS ..... 685
EVEREX FLOPPY 40 INTERNAL (USES DC2000) ..... 339
EVEREX STREAM 40T INTERNAL (USES CT600H CASSETTE) ..... 519
EVEREX STREAM 60T INTERNAL (USES CT600H CASSETTE) ..... 589
EVEREX STREAM 60 INTERNAL (USES DC600A CARTRIDGE) ..... 745
EVEREX STREAM 125 INTERNAL (USES DC600A CARTRIDGE) ..... 925
EVEREX QIC 02 INTERNAL TAPE CONTROLLER ..... 95
EVEREX STREAM 40T EXTERNAL (USES CT600H CASSETTE) ..... 630
EVEREX STREAM 60T EXTERNAL (USES CT600H CASSETTE) ..... 690
EVEREX STREAM 60 EXTERNAL (USES DC600A CARTRIDGE) ..... 865
EVEREX STREAM 60-8 EXTERNAL (USES DC600A CARTRIDGE) ..... 715
EVEREX STREAM 125 EXTERNAL (USES DC600A CARTRIDGE) ..... 1,125
EVEREX QIC 36 EXTERNAL TAPE CONTROLLER ..... 225
EVEREX QIC 02 EXTERNAL TAPE CONTROLLER ..... 105

## MONITORS/ TERMINALS/TV'S

NANAO FLEXSCAN 8060S VGA (ANALOG/TTL) ..... 559
GENIUS FULL-PAGE MONITOR W/ ADAPTER ..... 1,095
AMDEK 1280 MONITOR W/ ADAPTER (IDENTICAL TO WYSE WY700) ..... 675
NEC JB1407 MULTISYNC GS MONOCHROME ..... 195
NEC JC1402 MULTISYNC II ..... 545
NEC JC1501 MULTISYNC PLUS ..... 879
NEC JC2001 MULTISYNC XL ..... 1,895
SAMSUNG EGA (640x350) MONITOR ..... 395
SAMSUNG MULTISYNC EGA/VGA (800x600) MONITOR ..... 495
SAMSUNG CW-4644 RGB MONITOR ..... 295
SAMSUNG 2565A MONOCHROME MONITOR ..... 89
SONY 1303 MULTISCAN (800x600) ..... 509
QUIMAX DM-3112 12" VGA (720x480) ..... 415
QUIMAX DM-3114 14" VGA (720x480) ..... 439
QUIMAX DM-12 MONOCHROME MONITOR ..... 95
WYSE WY-50 TERMINAL WITH KEYBOARD ..... 395
WYSE WY-60 TERMINAL WITH KEYBOARD ..... 445
TOSHIBA CF2647 26" COLOR TV (CABLE-READY) ..... 395

## VIDEO ADAPTERS

ORCHID DESIGNER VGA (1024x768x16 COLORS) ..... 285
VIDEO 7 VRAM VGA ..... 540
VIDEO 7 VGA ..... 265
VIDEO 7 VEGA DE LUXE EGA ..... 185
VIDEO 7 VEGA EGA ..... 155
EVEREX VGA ..... 225
EVEREX MICROENHANCER DELUXE II (800x600) ..... 135
PARADISE VGA PROFESSIONAL ..... 425
PARADISE VGA PLUS ..... 285
PARADISE AUTOSWITCH EGA 480 ..... 195
PARADISE AUTOSWITCH EGA 350 ..... 155
PARADISE AUTOSWITCH EGA MONOCHROME ..... 175
MONOCHROME GRAPHICS ADAPTER ..... 49
SIGMA COLOR 400H VIDEO ADAPTER ..... 385

## EXPANSION BOARDS/ ACCELERATOR BOARDS

DIGIBOARD PS-COM/16-PORT MULTI-CHANNEL ADAPTER ..... 1,295
WYSE WY-995 8-USER SERIAL INTERFACE ..... 579
IBM SYNCHRONOUS DATA LINK COMMUNICATIONS (SDLC) ADAPTER ..... 295
AST XFORMER (10MHz MOTHERBOARD REPLACEMENT FOR YOUR XT) ..... 589
AST HOTSHOT 286 (UPGRADES YOUR PC/XT TO 10MHz NO WAIT STATE) ..... 489
EVEREX RAM 10000 EMS (LIM 4.0) W/O MEMORY ..... 135
EVEREX RAM 3000 DELUXE EMS (LIM 4.0) W/O MEMORY .. 75
128K RAM CARD (W/O MEMORY) FOR IBM AT MODELS W/ 512K ..... 99
640K RAM CARD (W/O MEMORY) FOR PC/XT ..... 39

## INTEL PRODUCTS

INBOARD 386/PC WITH 1MB RAM ..... 925
INBOARD 386/PC PIGGYBACK MODULE W/ 1MB RAM ..... 615
INBOARD 386/PC PIGGYBACK MODULE W/ 2MB RAM .... 1,165
INBOARD 386 WITHOUT MEMORY ..... 975
INBOARD 386 W/ 1MB RAM ..... 1,385
INBOARD 386 INSTALLATION KIT ..... 200
INBOARD 386 PIGGYBACK MODULE W/ 1MB RAM ..... 555
INBOARD 386 PIGGYBACK MODULE W/ 2MB RAM ..... 1,045
ABOVE BOARD 2 WITHOUT MEMORY ..... 275
ABOVE BOARD 2 W/ 512K RAM ..... 465
ABOVE BOARD 286 W/ 512K RAM ..... 405
ABOVE BOARD 286 W/ 2MB RAM ..... 965
ABOVE BOARD PS/286 W/ 512K RAM ..... 435
ABOVE BOARD PS/286 W/ 2MB RAM ..... 995
ABOVE BOARD PS/286 SECOND SERIAL PORT ..... 100
ABOVE BOARD PIGGYBACK MODULE W/ 512K RAM ..... 345
ABOVE BOARD PIGGYBACK MODULE W/ 2MB RAM ..... 895
8087 MATH COPROCESSOR ..... 135
8087-2 MATH COPROCESSOR ..... 165
8087-1 MATH COPROCESSOR ..... 225
80287 MATH COPROCESSOR ..... 195
80287-8 MATH COPROCESSOR ..... 235
80287-10 MATH COPROCESSOR ..... 295
80387-16 MATH COPROCESSOR ..... 375
80387-20 MATH COPROCESSOR ..... 575

## SOFTWARE

LOTUS SYMPHONY (3.5" VERSION FOR LAPTOPS) ..... 195
LOTUS METRO (3.5" VERSION FOR LAPTOPS) ..... 35
PAGE PERFECT (BEATS VENTURA OR PAGE MAKER) ..... 199
XEROX VENTURA DESKTOP PUBLISHING SOFTWARE ..... 485
SCO XENIX/286 COMPLETE SYSTEM ..... 1,050
SCO XENIX/286 OPERATING SYSTEM ..... 445
SCO XENIX/286 DEVELOPMENT SYSTEM ..... 445
SCO XENIX/386 OPERATING SYSTEM ..... 515
SCO XENIX/386 DEVELOPMENT SYSTEM ..... 589
BATTERY WATCH (BATTERY MONITORING SOFTWARE) * ..... 39.95
LAPLINK (FOR LAPTOPS) ..... 85
LAPLINK PLUS ..... 99
DESKLINK ..... 129
dBASE III PLUS LAN PACK ..... 665
INDIVIDUAL SOFTWARE TRAINING FOR WORD PERFECT ..... 59
INDIVIDUAL SOFTWARE DIRECTORY ASSISTANCE (BEATS XTREE) ..... 49
INDIVIDUAL SOFTWARE PROFESSOR DOS ..... 49
INDIVIDUAL SOFTWARE SMART GUIDE FOR DOS ..... 29
THE OFFICE PUBLISHER (LASER FRIENDLY) ..... 345
MICROSOFT WINDOWS/386 ..... 135
MICROSOFT WINDOWS DEVELOPMENT TOOL KIT ..... 379
MICROSOFT WINDOWS ..... 69
MICROSOFT WORKS ..... 139
MICROSOFT PC EXCEL ..... 275
MICROSOFT PC EXCEL NODE USER PACK ..... 250
DR. HALO II ..... 15
FORMTOOL ..... 49
DISK TECHNICIAN ..... 55
DRAFIX 1 PLUS CAD SOFTWARE ..... 145
WORD PERFECT 5.0 ..... 245
WORD PERFECT NETWORK 5.0 ..... 375
WORD PERFECT 5.0 NETWORK STATION ..... 89
WORD PERFECT LIBRARY ..... 59
BORLAND QUATTRO SPREADSHEET ..... 125
BORLAND TURBO C ..... 59
BORLAND TURBO GAMEWORKS ..... 39
BORLAND EUREKA : THE SOLVER ..... 89
BORLAND EDITOR TOOLBOX ..... 39

## MEMORY CHIPS

256x9 (80NS) SIM MODULES ..... 115

## NETWORK PRODUCTS

ARCNET INTERFACE CARD (UP TO 20MHz OR MORE) ..... 95
ETHERNET 8-BIT INTERFACE FOR PC/XT/AT (10MBPS) ..... 245
ETHERNET 16-BIT INTERFACE FOR PC/XT/AT ..... 415
INTERNAL 4-PORT ACTIVE HUB (ADD-ON) ..... 95
EXTERNAL 8-PORT ACTIVE HUB ..... 245
4-PORT PASSIVE HUB ..... 25
TIARA ARCNET LANCARD FOR PS/2 ..... 469
ACER 5280 12MHz EGA/MONO WORKSTATION W/ 512K . 1,395
CARBON COPY PLUS (FOR REMOTE DIAGNOSTICS) ..... 145

## NOVELL PRODUCTS

NOVELL 80286 12MHz DISKLESS ETHERNET WORKSTATION W/ 512K * ..... 1,525
ELS NETWARE/286 LEVEL II V2.12 (8 USERS MAXIMUM) * 995
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ADVANCED NETWARE/286 V2.12 (NEEDS NO KEYCARD) * ..... 1,795
ADVANCED NETWARE/286 V2.11 (FOR AT FILE SERVERS ONLY)
W/ AT KEYCARD ..... 1,695
W/ AT G/NET KEYCARD ..... 1,695
W/ AT DCB ..... 2,095
SFT NETWARE V2.1 (FOR AT OR PS/2 FILE SERVERS ONLY)
W/ AT KEYCARD ..... 3,665
W/ AT DCB ..... 4,049
SFT NETWARE 286 V2.0A (W/ TTS)
W/ AT KEYCARD ..... 3,895
W/ G/NET KEYCARD ..... 3,895
W/ AT DCB ..... 4,279
SFT NETWARE/286 LEVEL I V2.0A (FOR AT FILE SERVERS ONLY)
W/ AT KEYCARD ..... 2,339
W/ AT G/NET KEYCARD ..... 2,339
W/ AT DCB ..... 2,725
REMOTE BOOT PROM FOR NOVELL 286/2.11 ..... 25
REMOTE BOOT PROM FOR NOVELL 286/2.0A ..... 25

## BACK-UP POWER SUPPLIES /SURGE PROTECTORS

UNISYN UNIPOWER 400 ..... 495
DURANT BPS 300 ..... 429
DURANT BPS 500 ..... 579
DURANT BPS 550 (W/ NETWORK INTERFACE) ..... 665
DURANT BPS 1000 ..... 1,015
TRIPP LITE BC200 ..... 299
TRIPP LITE BC325 ..... 355
TRIPP LITE BC450 ..... 455
TRIPP LITE BC750 ..... 695
TRIPP LITE BC1200 ..... 939
TRIPP LITE BC2000 ..... 1,465
PTI INDUSTRIES DATASHIELD AT1500 ..... 1,615
PTI INDUSTRIES DATASHIELD AT1200 ..... 1,255
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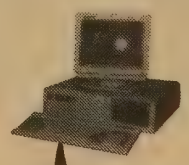

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**November 1 Focus 4GL/DBMS Seminars.** Sacramento. Information Builders, Inc. Call: (212) 736-0842

**November 1-3 Macintosh Business Conference And Exposition.** Disneyland Hotel and Convention Center, Anaheim. Cambridge Marketing, Inc. Call: Roy Einreinhofer, (617) 860-7100.

**November 2 How To Automate Your Business Accounting Seminar.** J.C. Luckrich & Co., CPAAAs, 284 Connecticut St., San Francisco. J.C. Lukrich & Co. Call: Bryan, (415) 864-6770.

**November 2 ProTel Meeting: Hands-on Demo Of Multiplexing And Facsimile Equipment.** Foster City. ProTel, Professionals In Telecommunications. Call: Debra Birkholz, (415) 964-4456.

**November 3 DOS Batch Files 1 Seminar.** Santa Clara. Silicon Valley Computer Society. Call: (408) 226-0507.

**November 3-4 Timeslips III Seminars.** San Francisco. Mentor Technologies. Call: 1-800-227-5502

**November 4 DOS Batch Files 2 Seminar.** Santa Clara. Silicon Valley Computer Society. Call: (408) 226-0507.

**November 5 Shop Till Ya Drop Computer Swap.** San Jose. Microshows. Call: 1-800-433-7469.

**November 5 Computer Show.** Sacramento Community Convention Center. East West Computer Shows. Call: (415) 388-8893

**November 5 How To Build Your Own PC/XT Or AT Clone Computer For As Little As $600 Class.** Kentfield. Royal H. Maul Call: (415) 485-228-3276.

**November 10 How To Automate Your Business Accounting Seminar.** J.C. Luckrich & Co., CPAAAs, 284 Connecticut St., San Francisco. J.C. Lukrich & Co. Call: (415) 864-6770.

**November 10 Focus 4GL/DBMS Seminars.** Sacramento. Information Builders, Inc. Call: (212) 736-0842

**November 10 Desktop Publishing On The Mac: Basics, Tips & Tools.** Stanford University. Stanford University. Call: (415) 725-1083.

**November 12 Shop Till Ya Drop Computer Swap.** Cow Palace, San Francisco. Microshows. Call: 1-800-433-7469.

**November 12 De Anza Computer Mart.** De Anza College Campus Center, Cupertino. De Anza College. Call: (408) 996-4350.

**November 12 How To Upgrade Your Own PC, XT Or AT And Save Money.** Rohnert Park. Royal H. Maul Call: (707) 664-2394.

**November 14-16 Strategies For Implementing Distributed Processing Conference.** Ramada Renaissance Hotel, Washington D.C. International Data Corporation. Call: Marji Grubic, (703) 893-0833.

**November 14-18 COMDEX/Fall Conference And Exposition.** Las Vegas. The Interface Group, Inc. Call: Walter D. Heithaus, (617) 449-6600.

*continued*

## 80286-10 MHz SYSTEM

- 80286 Motherboard (10/6 MHz)
- 0 Wait State
- 512K RAM Expandable To 1 MB
- Dual HD/FD Controller Card
- Teac 1.2 MB Floppy Drive
- Mono Graphics Card w/Printer Port
- Keyboard
- 200W Power Supply
- Real Time Clock, Calendar

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- 8088 Turbo Motherboard (10/4.77 MHz)
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## 80386-16 MHz System

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**Panasonic** 1091i Printer. . . . **192**
**Epson** LQ 500 . . . . . **300**

**CPI** 2400B (INT) Modem. . . **$89**
**Discovery** 1200B Pocket Modem . . . . . **79**
**Logitech** M8 Mouse . . . . . **29**

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| Seagate ST 225 (20MB) | $210 |
| Seagate ST 238 Kit (30MB) | 283 |
| Seagate ST 251-1 (40MB, 28ms) | 415 |
| Seagate ST 251-2 (40MB, 39ms) | 360 |
| Seagate ST 4096 (80MB, 28ms) | 595 |
| Teac 1.2MB Floppy Drive | 88 |
| Teac 360KB Floppy Drive | 70 |
| Teac 3.5″ 720K Floppy Drive | 90 |
| Teac 3.5″ 1.44MB Floppy Drive | 105 |

### VIDEO DISPLAY ADAPTERS

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|---|---|
| Mono Graphics card w/PP | $38 |
| Color Graphics card w/PP | 49 |
| Everex EGA w/o PP | 105 |
| Everex EGA w/PP | 123 |
| Paradise VGA+ | 270 |
| Genoa VGA | 249 |

### MISC & ACCESSORIES

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|---|---|
| Everex Ram 3000 Deluxe | $85 |
| 8088 Power Supply 150W | 53 |
| 80286 Power Supply 200W | 68 |
| Keyboard K151L | 35 |
| Keyboard K156 Enhanced | 45 |

### MODEMS

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|---|---|
| Everex 1200B (INT) | $72 |
| Everex 2400B (INT) | 168 |
| Everex 2400B (EXT) | 230 |

### MOTHERBOARDS

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|---|---|
| 80286-10 MHz Motherboard | $230 |
| 80286-12 MHz Motherboard | 240 |
| 80286-16 MHz Motherboard | Call |
| 80386-16 MHz Motherboard | 1400 |

### MULTIFUNCTION CARDS

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|---|---|
| Multi I/O Card | $51 |
| Everex I/O Card | 50 |
| 286 I/O Card | 39 |

### MONITORS

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|---|---|
| Samsung Mono Monitor | $72 |
| Samsung Color Monitor | 235 |
| Samsung EGA Monitor | 347 |
| Samsung Multisync Monitor | 495 |
| NEC Multisync Monitor | 595 |

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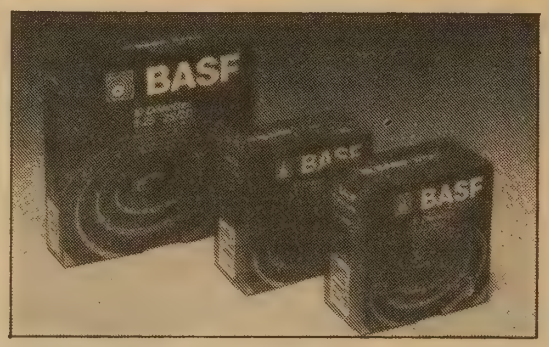


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## CALENDAR OF EVENTS *continued*

**November 14 C Workshop Demo.** Berkeley. C SIG. Call: Dan Baumbach, (415) 457-0729.

**November 15-18 CASE: Computer-aided Software Engineering, Hands-on Course.** San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

**November 15-18 Introduction To Datacomm & Networks Course.** Palo Alto. Integrated Computer Systems. Call: 1-800-421-8166.

**November 15-18 Case: Computer-Aided Software Engineering, Hands-on Course.** San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

**November 15-18 Advanced C Programming: Hands-on Workshop.** San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

**November 15-18 Introduction To Datacomm & Networks Course.** Palo Alto. Integrated Computer Systems. Call: 1-800-421-8166.

**November 16 High Technology Entrepreneurial Council Dinner/Lecture.** Oakland. High Technology Entrepreneurial Council. Call: Rachel, (415) 339-3895.

**November 17-18 Twelfth Annual Western Educational Computing Conference.** San Diego. California Educational Computing Consortium. Call: Judah Rosenwald, (415) 338-1212.

**November 18-19 1988 Real-Time Programming Convention.** Anaheim, CA. Forth Interest Group. Call: Kent Safford, (408) 277-0668.

**November 19-20 Computer Show.** Oakland Coliseum. East West Computer Shows. Call: (415) 388-8893

**November 19 Shop Till Ya Drop Computer Swap.** Alameda County Fairgrounds, Pleasanton. Microshows. Call: 1-800-433-7469.

**November 19 Learn Photo Manipulation On A Powerful Computer Graphic System Workshop.** San Francisco. Computer Arts Institute. Call: (415) 546-5242.

**November 19 How To Upgrade Your Own PC, XT Or AT And Save Money.** Martinez. Royal H. Maul Call: (415) 228-3276.

**November 21 C Language Presentations.** San Francisco. San Francisco PC Users Group. Call: (415) 221-9166.

**November 22 How To Automate Your Business Accounting Seminar.** J.C. Luckrich & Co., CPAAAs, 284 Connecticut St., San Francisco. J.C. Lukrich & Co. Call: (415) 864-6770.

**November 22 How To Build Your Own XT/AT Compatible Computer.** Fort Mason Center, San Francisco. Datamed. Call: (415) 284-1024.

**November 26 Computer Show.** Solano County Fairgrounds, Vallejo. East West Computer Shows. Call: (415) 388-8893

**November 28 How To Automate Your Business**

*continued*

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| Maxtor ESDI 320 MB (16ms) | $2499 |
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| 360 KB Floppy Disk Drive | $89 |
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| Genoa Hi-Res EGA Card (800 x 600) | $199 |
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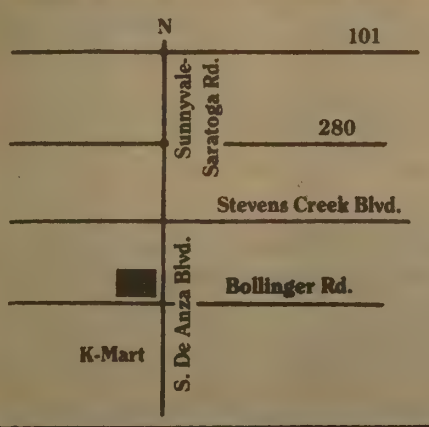


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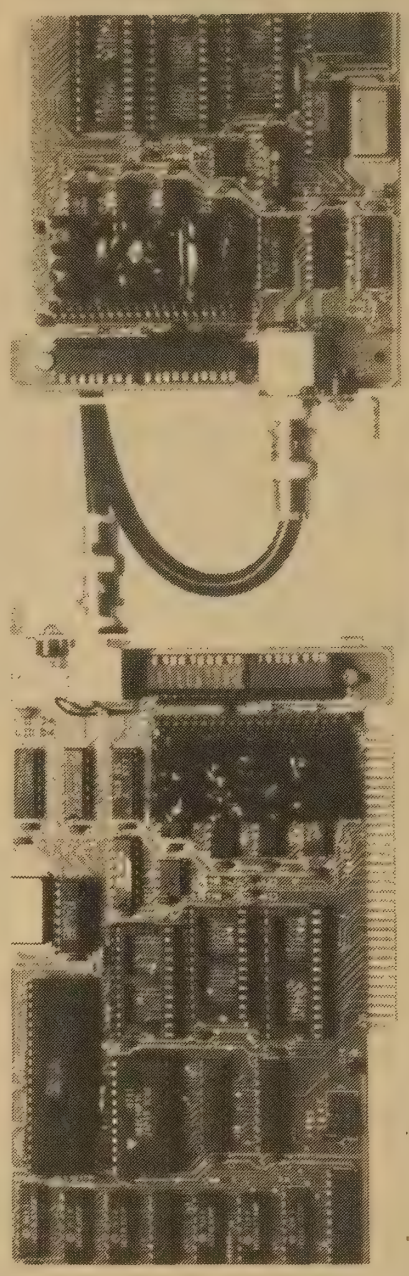

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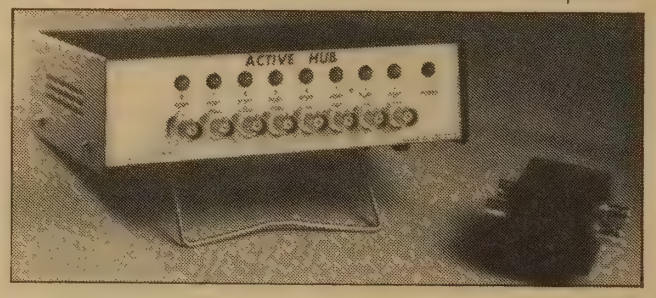


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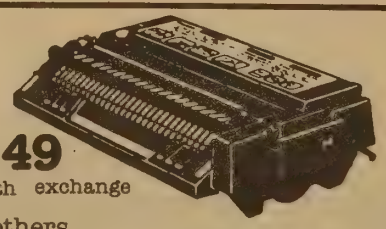

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## CALENDAR OF EVENTS *continued*

**Accounting Seminar.** J.C. Luckrich & Co., CPAAAs, 284 Connecticut St., San Francisco. J.C. Lukrich & Co. Call: (415) 864-6770.

**November 28 MS Word Users Group Meeting: Word, Windows, Presentation Manager, OS/2 Demo.** Call: (408) 356-8805.

**November 29-December 2 OSI Product Integration Conference.** McLean Hilton, McLean, Virginia. Advanced Computing Environments. Call: Wendy C. Gibson, (415) 941-3399.

**November 29-December 2 ADA Programming & Software Engineering: Hands-on Introduction Course.** San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

**November 29 How To Get The Most Out Of Your IBM PC: Desktop Publishing Options, Techniques & Tools.** Stanford University. Stanford University. Call: (415) 725-1083.

**November 30 Advanced Macintosh: Tricky Problems I Expert Solutions.** Stanford University. Stanford University. Call: (415) 725-1083.

**December 3 How To Build Your Own PC/XT Or AT Clone Computer For As Little As $600.** Martinez. Royal H. Maul Call: (415) 574-6563.

**December 3 Hard Disk Management Techniques For Your IBM PC, XT Or AT.** Daly City. Royal H. Maul Call: (415) 574-6563.

**December 5-7 Managing Expert Systems Development Seminar.** San Francisco. Technology Transfer Institute. Call: (213) 394-8305.

**December 5 How To Automate Your Business Accounting Seminar.** San Francisco. J.C. Lukrich & Co. Call: Bryan, (415) 864-6770.

**December 6 Learn The Essentials Of DOS Class.** Fort Mason Center, San Francisco. Datamed. Call: (415) 284-1024.

**December 6-9 Structured Design & Programming Course.** San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

**December 6-9 Technospace: International Space Industries And Technologies Exhibition.** Bordeaux, France. Technospace '88. Contact: Marie-Anne Chambost, 58, rue de la Boetie, 75008 Paris; Tel.: 16.1 45 63 45 72.

**December 6 Intro. Hands-on Javelin Seminar.** San Francisco. Mentor Technologies. Call: 1-800-227-5502.

**December 7 Adv. Hands-on Javelin Seminar.** San Francisco. Mentor Technologies. Call: 1-800-227-5502.

**December 8 Focus 4GL/DBMS Seminars.** Sacramento. Information Builders, Inc. Call: (212) 736-0842

**December 10-11 Learn How To Use A Powerful Computer Graphic System Workshop.** San Francisco. Computer Arts Institute. Call: (415) 546-5242.

**December 11 Computer Show.** Marin Civic Center, San Rafael. East West Computer Shows. Call: (415) 388-8893

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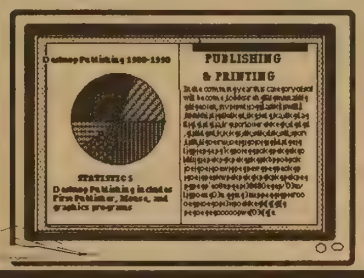


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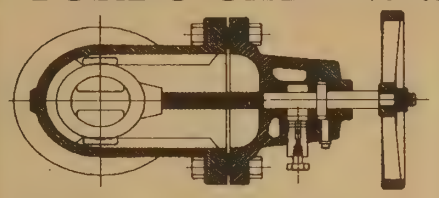

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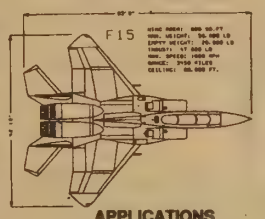


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**APPLICATIONS**

- Floorplans
- Schematics
- Architectural design
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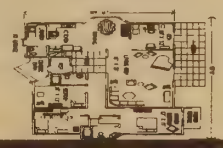

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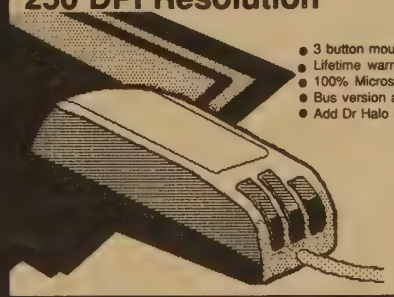

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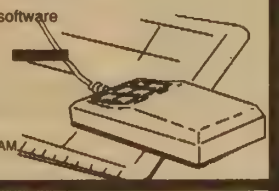

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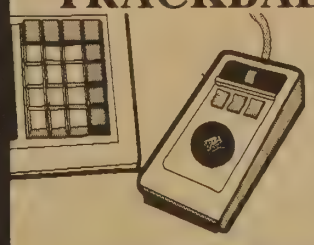

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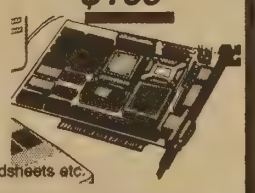

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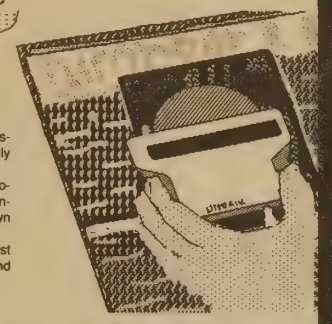

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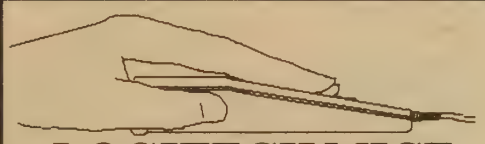

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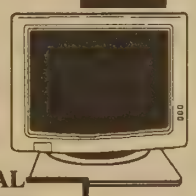

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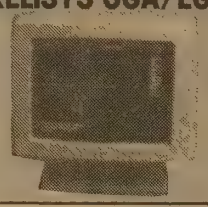

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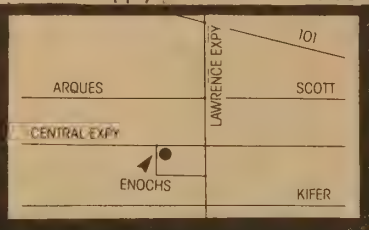


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**December 13 How To Build Your Own XT/AT Compatible Computer.** Fort Mason Center, San Francisco. Datamed. Call: (415) 284-1024.

**December 13 Focus 4GL/DBMS Seminars.** San Jose. Information Builders, Inc. Call: (212) 736-0842

**December 14-21 Soviet Export Goods Exhibition: Cooperation Through Trade.** New York, NY. The USSR Chamber of Commerce and Industry. Call: D. Wolstenholme, (703) 893-4545.

**December 15-16. Timeslips III Seminars. San Francisco.** Mentor Technologies. Call: 1-800-227-5502

**December 16 Explore The Possibility Of Computer Graphic Training Seminar.** San Francisco. Computer Arts Institute. Call: Barbara Gustafson, (415) 546-5242.

**January 11-13 International Superconductor Applications Convention: SC Global '89.** San Francisco. Superconductor Applications Association. Call: (714) 586-8727.

**January 11-13 Software Requirements & Design Specifications Course.** San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

**January 17-20 Effective Skills For Technical Managers Course.** San Francisco. Integrated Computer Systems. Call: 1-800-421-8166.

**January 17-20 C Programming: Hands-on Workshop.** San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

**January 18-20 Software Quality Assurance & Testing Course.** San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

**January 23-25 The 1988 Optical Disk Systems Conference: "From the Mail Room to the Board Room."** Phoenix, Arizona. CAP International. Call: Kristin Fischer, Conference Coordinator, at (617) 982-9500.

**January 24-27 UNIX Hands-on Workshop.** San Francisco. Integrated Computer Systems. Call: 1-800-421-8166.

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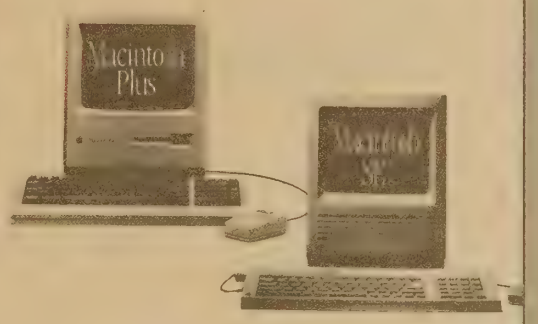


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# NEWS
## AND ANALYSIS

BY PAUL HOFFMAN

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*Paul Hoffman is an industry analyst who has been covering microcomputer technology for ten years. He can be reached on USENET (phoffman@well) and MCI Mail (264-3171). He also writes popular microcomputer books.*


*No Big Surprise:*

# Apple Releases High-End Macintosh II and Mid-Range Apple IIC

Fairly recently, Apple CEO John Sculley said Apple would not announce any new computers this year; he was wrong. In fact, Apple announced two new computers within one week. The Mac IIx is essentially a Mac II with a 68030 CPU and 68882 floating-point processor. It is of most interest to people running Apple's version of UNIX, A/UX. The Apple IIC Plus has an internal 800K 3.5" floppy disk drive, giving it much more storage space than the old model. In addition, the new computer's 65C02 CPU can run programs up to three times faster than the old model.

In explaining the turnaround from his earlier promise of no new computers, Sculley said simply, "I was wrong." Apple's announcements were prompted both by an imminent announcement by NeXT of a new academic computer and by the rapidly-increasing sales of MS-DOS machines into the home market. Neither announcement involved major changes in Apple's product line. The Mac IIx is only 10-15% faster than the current Mac II, although for numeric-intensive calculations it can be up to twice as fast. The IIC Plus is a more convenient version of the older computer; one of its biggest changes is the internal power supply and area for an internal modem.

Both computers have new disk media. The Mac IIx has Apple's new Floppy Disk High Density (FDHD) which holds 1.4 megabytes and can read 3.5" MS-DOS floppies without special commands. The IIC Plus' disk drive answers one of the biggest problems with the old IIC, namely that very little data could be stored on a floppy.

## Apple Raises Prices

In a move that has caused screams of anguish from users and corporations, Apple raised the price on most of its computers and some of its popular peripherals. Apple justified the price raise on two counts: higher-priced RAM and high demand. Although no one can dispute that RAM has increased the cost of computers to many manufacturers, the "increased demand" argument raised quite a few hackles in the user community. In essence, Apple claims that since its computers are so popular, it can get away with raising the price without forsaking too many sales. Although this indicates that Apple is feeling more confident about sales than it has in the last few years, it certainly makes it harder for the average user to afford an Apple computer, especially compared to IBM clones whose prices have remained fairly steady in the last year.

The prices of the Mac Plus and Apple IIe were not raised, however. Apple also raised the prices on many peripherals such as floppy disk drives, monitors and LaserWriter memory. The price increases

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| Mac SE, 20 MB hard disk | 3769 | 3569 | 6% |
| Mac II | 4869 | 3769 | 29% |
| Mac II 1 MB RAM, 40 MB hard disk | 6169 | 5369 | 15% |
| Mac II 4 MB RAM, 40 MB hard disk | 8069 | 7269 | 11% |
| Apple IIGS | 1149 | 999 | 15% |
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| LaserWriter IINTX | 6999 | 6599 | 6% |

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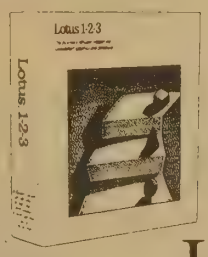


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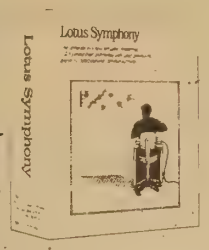


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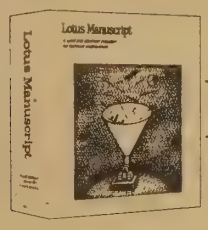


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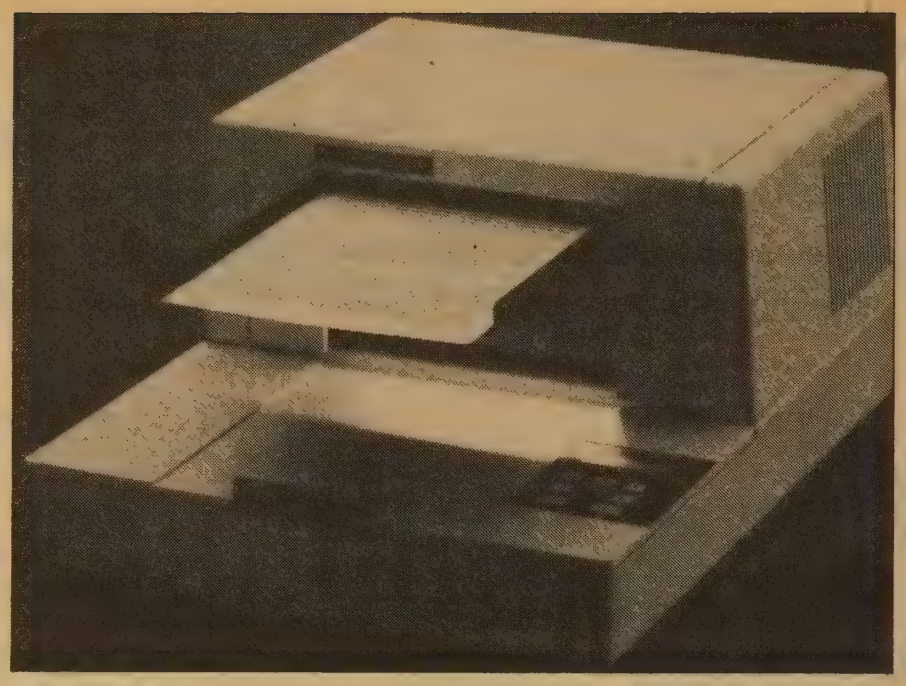


**DEST's WorkLess Station II is a departmental scanner featuring text recognition, 256 level grey scale scanning capability and custom interfaces to support mini-computers, dedicated word processors and personal computers.**

are effective immediately, and many people expect Apple to reduce the prices to their current levels within six months if the RAM shortage eases and chip prices drop.

## Seybold Desktop Publishing Conference Brings Out Announcements of New Products In Many Areas

Manufacturers of desktop publishing hardware and software gathered for the rapidly-growing Seybold Desktop Publishing Conference in Santa Clara recently to discuss the future of desktop publishing and to introduce new products. The mood at the show was very optimistic, not necessarily because of any major breakthroughs in new technology, but due to an increased awareness on the public's part of desktop publishing.

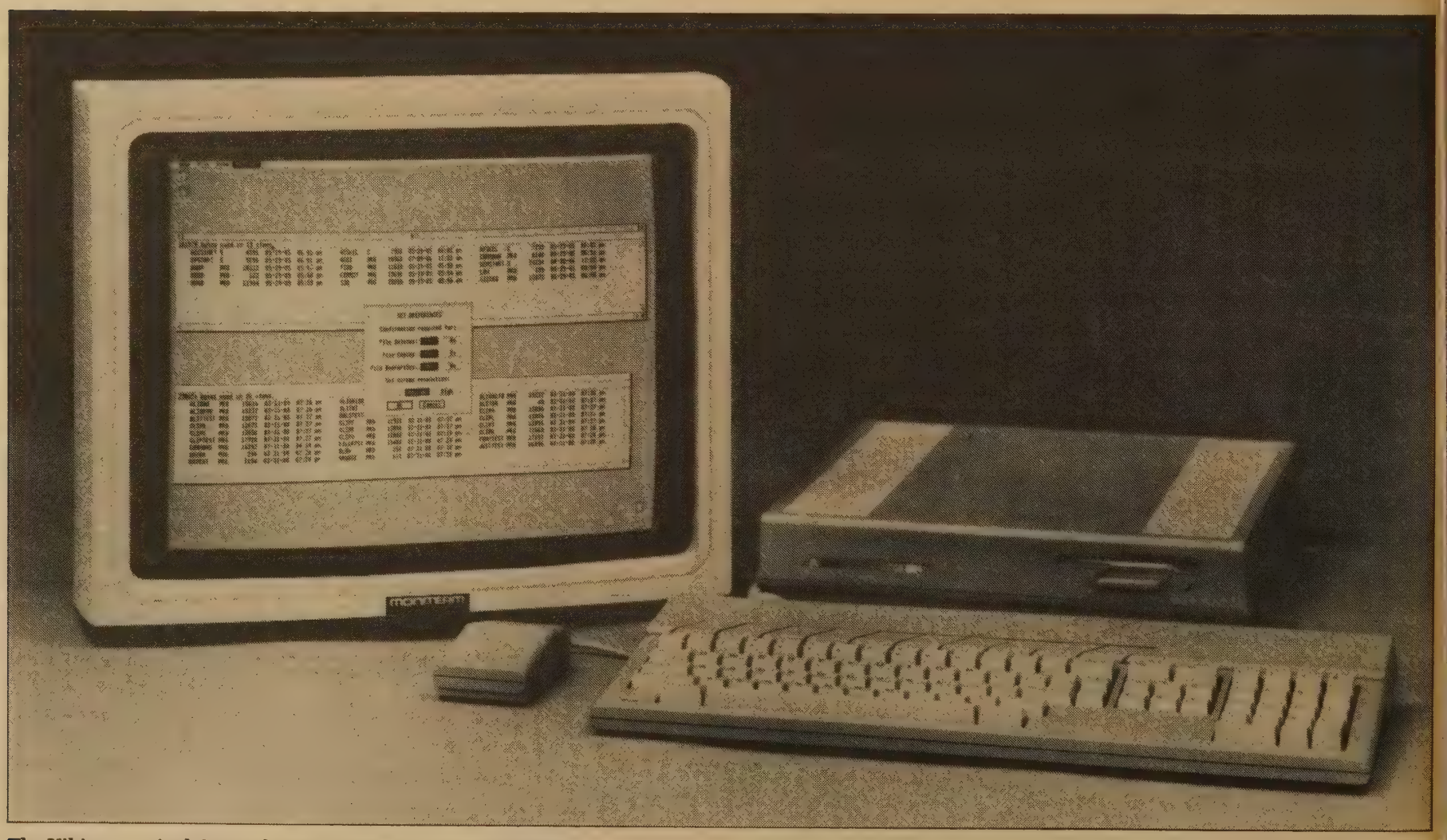
Both Apple and IBM had very large booths at the show, mostly showing their hardware running with other companies' software. Clearly, the attractiveness of the desktop publishing field that Apple started three years ago in an advertising campaign has not diminished for hardware manufacturers. Many minicomputer manufacturers, such as Sun and Intergraph, were also showing their hardware. Atari surprised many people by showing many new desktop publishing applications and the large-screen displays that are popular for desktop publishing.

The seminars at the conference showed that desktop publishing has given computer owners much more power to create finished products in their offices, but has not helped them design good-looking output. Most seminar discussions were about technology and user experiences, leaving many beginners wondering about the basics of design.

On the exhibition floor, companies touted products from the many corners of the desktop publishing market. Most Macintosh manufacturers had made their new product announcements a month before at Macworld Exposition in Boston, although some had saved their announcements for Seybold in order to get more publicity in a less-crowded environment. Many popular Macintosh products were being shown running under Microsoft *Windows* on PC ATs for the first time.

• Calera Recognition Systems (formerly Palantir) introduced their TrueScan scanner recognition card for the IBM PC AT and compatibles. TrueScan works with most desktop scanners to allow them to read text from scanned images.

• Brøderbund leapt into the desktop publishing market with three new low-cost packages for the Macintosh. The packages cover a wide area of Macintosh use, including PostScript fonts, drawing and design. *TypeStyler* allows you to easily change the look of both PostScript and non-PostScript fonts for special effects; it costs $150. *Drawing Table* completes in the already-crowded color paint and



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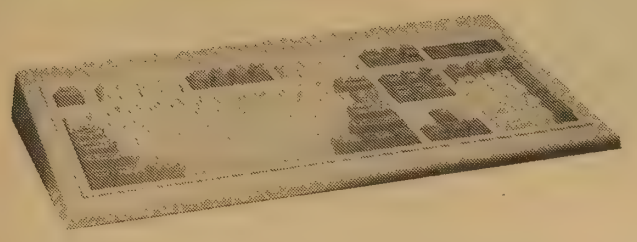
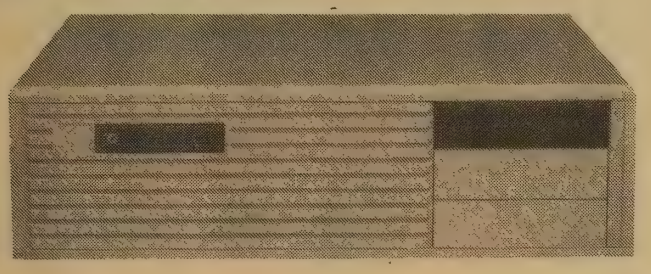
## Keyboards



BTC offers exceptional value in their 84-Key Keyboards and their 101-Key Enhanced Keyboards for IBM PC/XT and AT compatibles.

## AT Cases



The BTC AT case has a scratch-resistant, baked enamel finish that is smooth, tight and laser straight.

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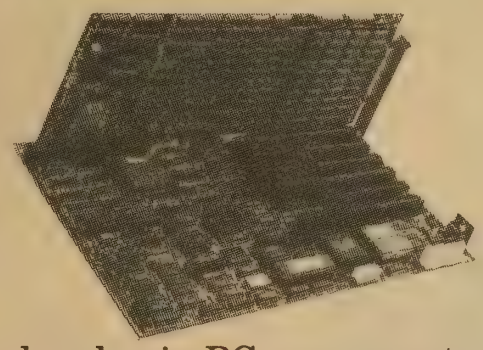
## Motherboards



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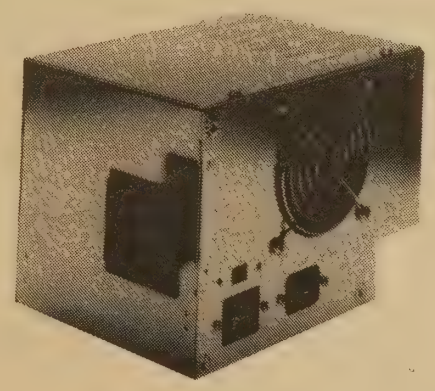

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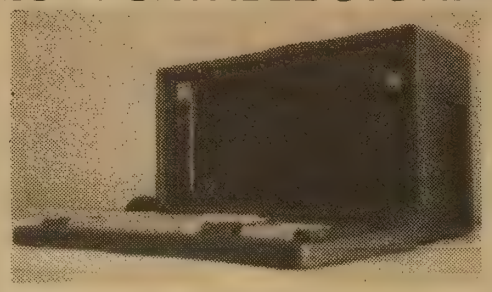

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| TEAC 1.2 MB | 81 |
| TOSHIBA 720K/1.44 MB | CALL |
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| SEAGATE ST-225 | 200 |
| SEAGATE ST-238 | 225 |
| SEAGATE ST-251 | 330 |
| SEAGATE ST-4096 | 545 |

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|---|---|
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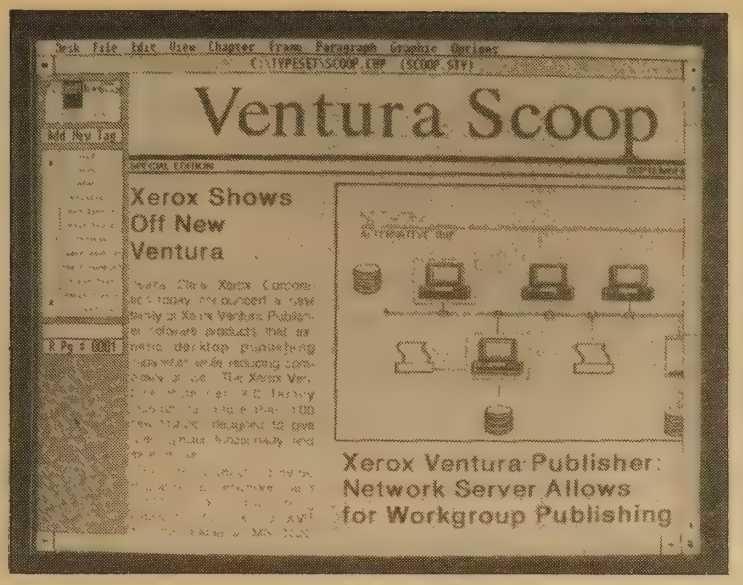
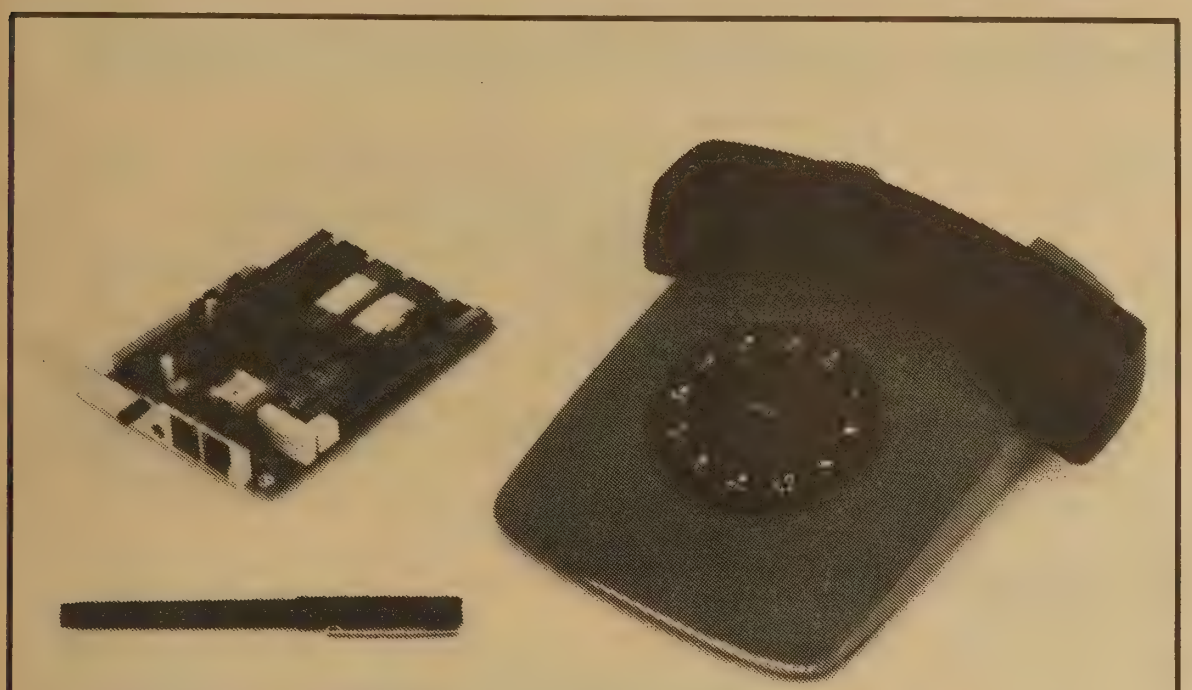
# NEWS AND ANALYSIS




**Xerox's version 2 of its popular *Ventura Publisher* package offers spot color support, selectable user interface and text rotation.**

drawing markets, but costs only $130. *DTP Advisor* is a *HyperCard* stack that gives advice on design and layout as well as helping coordinate and estimate publishing projects; it costs $80.

• Xerox introduced version 2 of its popular *Ventura Publisher* package. The new version has support for spot color, selectable user interface and text rotation. *Ventura Publisher Professional Edition* has many more advanced features, such as table handling and vertical page justification. Xerox also introduced a network version of the software.

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• Quark introduced *QuarkStyle*, an inexpensive version of their popular *QuarkXpress* desktop publishing program for the Macintosh. *QuarkStyle* has almost all of *QuarkXpress*' features except the ability to create new design templates; however, the package comes with 76 already-designed templates, and templates can be imported from *QuarkXpress*. *QuarkStyle* is also a full-featured word processor, and can read documents from major word processing software on the Mac. *QuarkXpress*, at $795, has become a popular alternative to industry leaders Aldus' *PageMaker* and Letraset's *Ready, Set, Go!*, and Quark is hoping that the only slightly less powerful *QuarkStyle* at $295 will help it gain market share. In large companies with only one designer, most users would buy *QuarkStyle* while the designer would use *QuarkXpress*, according to the company.

• Moniterm released their 19-inch monitors for the Atari Mega systems. The Viking for Atari is the same monitor already available for the Macintosh and IBM PCs, but with special interface circuitry and software for the Atari. It is the first 19-inch monitor available for Atari computers, according to both Moniterm and Atari. It costs $1995, the same as for the Macintosh and IBM PC. Moniterm also showed its new 24-inch monitor, which is large enough to display a full tabloid page at actual size.

• Compugraphic, one of the leaders in the traditional typesetting world, announced that future Compugraphic imagesetters will use the PostScript page description language. In conjunction with this, Compugraphic introduced upgrades to their popular imagesetter, the 9400PS, which makes them immediately accessible from computers sending PostScript codes. The also introduced a 400 dots-per-inch fast laser printer and two scanners, both manufactured by Agfa, and new PostScript typefaces for the Macintosh.

• Digital Composition Systems showed *dbPublisher*, the first package to integrate desktop publishing and information from databases and spreadsheets. The package is used by companies who publish documents which are based on data from other programs, such as *dBASE III* or *1-2-3*. For instance, a company that updates it price list could use *dbPublisher* to pull the price information directly out of a database. With the $695 package, you can do standard desktop publishing for the text and layout of the document and automatically incorpo-

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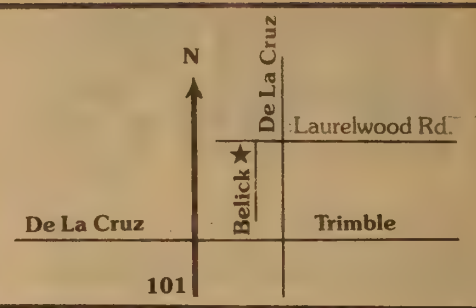


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- SPRINT 386 Motherboard w/1MB RAM on Board (32-bit; 0-wait State, up to 2MB; 2-8MB Piggy-back Memory; 5 16-bit slots; 2 8-bit slots)
- And Common Features

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## MYLEX 386-AT (20MHz) SYSTEM

**(NORTON SI = 24.2; Landmark = 29.5)**

- MYLEX 386 Motherboard (20MHz) w/1MB on Board (64KB Static RAM Cache)
- And Common Features

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| MYLEX 386 (16MHz)* | 1985 |
| SPRINT 386 (20MHz)* | 1350 |
| EVEREST 386 (20MHz)* | 1395 |
| *w/1MB RAM | |
| NEAT 286 (16MHz) | 429 |
| NEAT 286 (20MHz) | 469 |
| 286 (12MHz) | 260 |
| 286 (10MHz) | 225 |
| XT-TUBRO | 70 |

### HARD DRIVE

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|---|---|
| ST-225 (20MB) | $195 |
| ST-225 (20MB) Kit | 245 |
| ST-251 (40MB) | 325 |
| ST-251-1 (40MB) | 405 |
| ST-4096 (80MB) | 565 |

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|---|---|
| TEAC 360KB FD | $65 |
| TEAC 1.2MB FD | 82 |
| TEAC 720KB FD | 80 |
| TEAC 1.44MB FD | 95 |

### MONITOR

| | |
|---|---|
| MONO (CASPER/SAMSUNG) | $69 |
| COLOR (CASPER/SAMSUNG) | 229 |
| EGA (CASPER/SAMSUNG) | 340 |
| NEC MULTISYNC II | 569 |

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| EGA CARD | 130 |
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| XT FLOPPY CONTROLLER | 18 |
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|---|---|
| KEY TRONIC (101-key) XT/AT | $49 |
| MITSUMI (101-key) XT/AT | 40 |
| 101-KEY XT/AT | 35 |
| MITSUMI (84-key) XT/AT | 31 |

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|---|---|
| 150-Watt | $36 |
| 220-Watt | 49 |

### CASE

| | |
|---|---|
| XT CASE | $29 |
| AT Deluxe CASE | 52 |

### PRINTER

| | |
|---|---|
| LQ-500 | $345 |
| LX-800 | 195 |
| CABLE | 4 |

### MISCELLANEOUS

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|---|---|
| 80287-10 | $245 |
| 80287-8 | 185 |
| MOUSE | 45 |
| MODEM 1200 (Int) | 65 |
| MODEM 2400 (Int) | 95 |

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# NEWS AND ANALYSIS

rate and format the data from the native data files.

• Caere, who made a big splash at MacWorld Expo with their *OmniPage* scanner software for the Macintosh, announced the same software for the PC running under Microsoft *Windows*. The *Windows* software comes with an add-in card for the PC which contains a 68020 CPU and two megabytes of RAM. *OmniPage* can run in the background while other tasks are performed on the PC. Hewlett-Packard also announced that anyone who buys an H-P ScanJet printer and Caere's *OmniPage* before December 31 will get a free document feeder for the scanner; the document feeder normally costs $595.

• Sun Microsystems purchased Folio, Inc., a producer of font and imaging technology. Sun will use Folio's technology to further their entry into the high end of desktop publishing. Folio's *TypeMaker* and *TypeScaler* will be integrated into many of Sun's device-independent products to make it easier for other manufacturers to attach their equipment to Sun computers.

• On the more technical end of things, Emerald City Software showed its *Lasertalk* package running under Microsoft *Windows*. *Lasertalk* helps programmers working with PostScript to debug the PostScript part of their programs and to watch how the image is created in the printer.

• Varityper introduced PostScript-compatible versions of their 4200 and 4300 imagesetters. The 4200P prints 1200 dots per inch, while the 4300P prints 2400 dots per inch. Varityper also announced that current 4200 and 4300 owners could upgrade to the PostScript versions.

• Advanced Vision Research announced *SoftScrybe*, an MS-DOS program that processes PostScript code in the PC and prints it on non-PostScript laser printers. The program uses the AVR TIGer accelerator board to control the laser printer. The program comes with 35 fonts and costs $575. AVR also announced an EMS-compatible version of their TIGer card and a stack feeder for their scanner.

• Personal TEX Inc. showed *PTI View*, a program for previewing documents formatted with TEX on the screen before printing. *PTI View* works with documents that use either Bitstream fonts or Metafont fonts and displays on a Hercules, CGA or EGA monitor.

• Adobe, the creator of PostScript, announced the Microsoft *Windows* version of *Adobe Illustrator*, the Font Folio for owners of the Apple LaserWriter II NTX, and new and revised PostScript fonts. The *Windows* version of *Illustrator* has almost all the features of the Macintosh version, although a few were left out due to *Windows* memory limitations. *Illustrator* works closely with PostScript printers to produce high-quality pictures. *Illustrator* will retail for $695. Font Folio is a hard disk containing the entire catalog of Adobe fonts for the Mac. The hard disk attaches directly to the hard disk port of the Apple LaserWriter II NTX, giving the printer direct access to over 300 PostScript typefaces. The drive costs $9600. Adobe also created new versions of all their PC fonts with new features such as downloading from the parallel port and higher-speed serial downloading. Upgrades cost $40 for the first font and $20 for each additional font.

• Cricket Software opened its Cricket Expression device drivers to all Macintosh applications. This allows hardware manufacturers who use the device drivers to work with many more programs. Cricket also released device drivers for many new color printers and plotters from Calcomp, Seiko and Sharp. In addition to the drivers, Cricket showed an updated version of *Cricket Presents*, its desktop presentation software for the Macintosh.

• DEST showed its new WorkLess Station II, a full-featured scanner with character-recognition and image processing software built into the system. The system comes with a 75-page sheet feeder and can send the scanned information out to a wide variety of computers.

• Olduvai released a Microsoft *Windows* version of *Read-It!*, their character recognition software that works with scanners.

• E-Machines introduced a 21-inch display for the Macintosh SE.

## Fujitsu Begins Manufacturing Scarce One-Megabit DRAM In San Diego

Attempting to help alleviate the RAM shortage and avoid tariffs, Fujitsu began producing one-megabit


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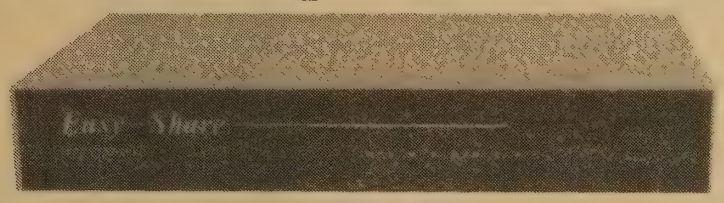


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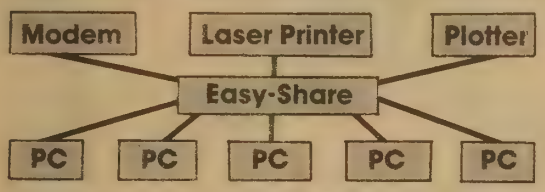


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# NEWS AND ANALYSIS

DRAM chips in its San Diego plant last month. The plant, which also produces other chips, will help Fujitsu keep its clients stocked with DRAM and hopefully lower the price of the chips. Fujitsu recently was prevented from buying chip maker Fairchild, making it much harder for it to start US chip production.

## PC Clone Makers Agree On New Bus Standard

All the major clone makers agreed to compete with IBM's Micro Channel Architecture (MCA) bus by building computers in the future to a new standard. The Extended Industry System Architecture (EISA) allows 32-bit computers, such as PC clones with 80386 CPUs, to run at high rates and to have many CPU cards interacting with the bus. The EISA standard has most of the features of IBM's MCA, but also accepts older cards designed for the IBM PC and AT. The announcement was only for the formation of the standards group, however; the standard will not be complete for many months and the first shipment of computers which adhere to the standard will probably not be seen for over a year.

Many companies have felt that IBM was vulnerable with its incompatible bus, but wanted to achieve the higher speed of a 32-bit data path and other advanced bus features. Although some manufacturers had designed (and in some cases marketed) computers with better buses, none had been accepted as a standard. The EISA was pushed most strongly by Compaq, the leader behind IBM in sales of PCs. Others who supported the standard at the announcement include Epson, Hewlett-Packard, NEC, AST and Tandy. Over three dozen other clone makers promised to support the standard. The new standard was also supported by many other companies such as Microsoft and Novell.

The EISA design team has had plenty of time to mimic the best features of IBM's MCA, and have chosen the most useful ones for EISA. According to Compaq, the new bus can be up to 50% faster than MCA if cards are well designed. AT cards on the bus will react at about the same speeds as they currently do. The EISA design is based primarily on work done at AST and Compaq. The design is nearly complete and chip companies such as Intel, NEC, Chips & Technologies and Western Digital are starting to create chips to support the bus.

The EISA announcement should keep the PC and AT bus structures alive for at least another few years until the majority of systems in the workplace have either EISA or MCA buses. Although IBM is claiming that it is very successful at getting the MCA bus accepted, corporate users disagree; many are buying non-IBM computers for the first time due to their heavy investment in peripheral cards. As the 80386 (and the future 80486) CPUs become more popular, the MCA- and EISA-based computers will become more of a standard due to their better ability to pass data rapidly along the bus. Clearly, IBM will not abandon the MCA bus, and the EISA bus should give it a great deal of competition when the computers become ready a year from now.

## IBM Introduces New AT-Style Model, Ships Third Million PS/2

On the same day that its competitors announced the EISA, IBM came out with a new computer that does not use the MCA bus that it touts so highly. IBM's PS/2 Model 30 286 has an 80286 CPU, and has more capacity of on-board RAM. It is virtually identical to the MCA-based Model 50 except for the bus. The hard-disk based version also has a faster disk and better caching than the old Model 30. The computer is about 50% faster than the old Model 30, and helps bring up the low end of the PS/2 line. The retail price of the new system is $1995 without the 20 Mb hard disk and $2595 with the hard disk.

At the same time, IBM announced that it had sold three million PS/2 systems, approximately half of them with MCA buses. It also announced three new small mainframe models in the 9370 line: Model 20, Model 50 and Model 80. The 9370 line has had a slow start in sales but is becoming more popular as department-level computers for companies with many of the larger System/370 computers.

## Borland Introduces New Debugger and Assembler

Keeping the heat on Microsoft in the languages market, Borland recently introduced its new *Turbo Assembler And Debugger* package which gives programmers better access to the innards of their programs. The tool also lets them assemble machine language much faster than Microsoft's Assembler program, according to Borland. The debugger is mostly meant for professional programmers, although intermediate users will also find it useful


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# NEWS AND ANALYSIS

since it lets you look at your data as you debug your program.

## Microsoft Programmers Get Entire Reference Collection On CD-ROM

Most programmers have bookshelves crammed with language manuals, operating system guides and assorted other books for programming. Microsoft has just released a single CD-ROM disk that may eliminate almost all of those for people who program using Microsoft languages or operating systems. The Microsoft Programmer's Library contains all of the manuals for Microsoft's languages and operating systems, and also includes many Microsoft Press books as well. There are also over seven megabytes of sample program code.

The disk is extensively cross-referenced, so you can quickly find information on a subject in many different manuals. The information can easily be scanned and dropped into most editors for incorporation in programs or for printing. The CD-ROM search engine has advanced features such as bookmarks and cross-references.

The complete library, which costs $395 until the end of this year, will be updated next year with additional information on OS/2 Presentation Manager as well as new source code. The first version contains all of the manuals for MS-DOS, *Windows*, OS/2, MASM, C, Pascal, FORTRAN, BASIC, CodeView, and Microsoft hardware. The Microsoft Press books include the complete *MS-DOS Encyclopedia*, *Inside OS/2*, *Advanced MS-DOS* and *Programmer's Guide to PC & PS/2 Video Systems*. There is also sample code from the *Microsoft Systems Journal*. The library will be accessible over a network.

At the same time, Microsoft says that future updates of many of its programming languages would be distributed on CD-ROM in addition to floppy disks. Microsoft's language updates, which usually take up many floppies, are usually accompanied by large documentation replacements, so the CD-ROM update would make it easier for some people to perform the updates in a single step.

## Texas Instruments And Cypress Back SPARC

Sun's SPARC reduced instruction set computer (RISC) chip got a large boost towards becoming a standard when Texas Instruments announced that it would design and manufacture its own version of SPARC, as well as use it in its future computers. TI said that it would port its artificial intelligence platforms to the SPARC architecture under UNIX as well as use it in other areas where it is strong, such as CAD/CAM.

TI also said that it had reached an agreement with Cypress to second-source the Cypress 7C601 SPARC chip. Cypress needed a strong partner so that it could convince computer manufacturers to commit to the chip in quantity. TI will thus be making its own versions of SPARC as will other vendors. Sun is banking on others to join it in the SPARC systems market in order to establish it as a standard.

## Gould Electronics: Going, Going, Gone

First Gould sold its semiconductor division to its competitor, California Micro Devices, for $70 million. Then it sold its Ocean Systems division to aerospace giant Martin Marietta for $117 million. One day later, Gould was acquired by Nippon Mining of Japan for $1.1 billion. Although it is being discussed here as a merger, the Japanese press has covered it as buyout. Gould has been shedding its divisions over the past few years in anticipation of an acquisition, but the purchase by a Japanese giant took many people by surprise.

## Wall Street Journal Excoriates Lotus, Manzi

Most computer companies dream of appearing on the front page of the *Wall Street Journal*. Lotus isn't so excited these days. In an unprecedented front-page denouncement of a software company, an article titled "After Years of Glory, Lotus Is Stumbling In Software Market" berated Lotus and especially president Jim Manzi for blowing its lead in the software market. The article says that Manzi "lucked into" Lotus and was unable to keep control after founder Mitch Kapor left. Commenting on the lateness of version 3 of *Lotus 1-2-3*, the article says, "But if it misses that deadline [late this year] by much, or if the product doesn't live up to its promise, Lotus may become just one more former highflyer in the high-tech game." The severely negative tone of the article stood out from the *Journal*'s usual style of only saying good about large companies.


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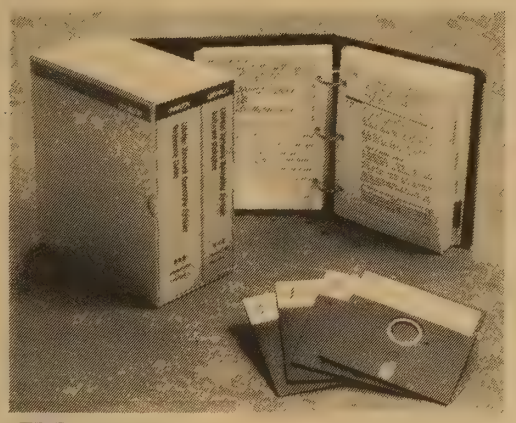

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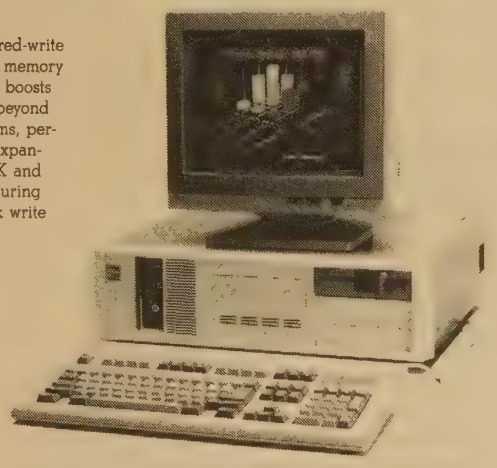

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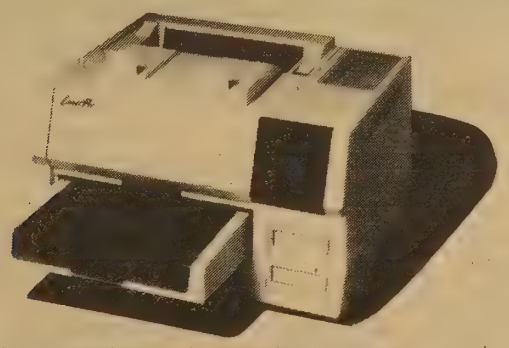

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| 16MHz '0' Wait State 80386 Mono System | $2225 |
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# NEWS AND ANALYSIS

One week after the scathing article, Lotus announced a free upgrade to Version 3 for any user who buys *1-2-3* after September 6 for up to 30 days after Version 3 is released. However, the fine print in the ad angered many people. In a step that will prevent many users from updating, version 3 requires a full 640K of RAM and a hard disk as a minimum. Also, an 80286 CPU is recommended.

## Commodore Offers Free Amiga Software To Teachers

Any school employee who buys a complete Amiga system before December 15 will get more than $1000 in software from Commodore in a promotion aimed at getting more Amigas in the school systems. The package includes a word processor, paint program, music, spreadsheet, database, grading and other software. Commodore hopes that more teachers will use the Amiga in their classrooms in order to help unseat Apple from the undisputed lead in educational computing.

## Bizcomp's Modem Patent Invalidated

U.S. Robotics successfully sued to have a modem patent claimed by Bizcomp invalidated for being unoriginal and obvious. The patent covered a very small part of the way the modem works, but Bizcomp attempted to get a great deal of money from other modem manufacturers when the patent was issued. Although some manufacturers gave in, U.S. Robotics fought to have the patent invalidated and sued for damages against Bizcomp. After losing its case in 1987, Bizcomp appealed, but that appeal was turned down when the judges ruled unanimously against it.

## AT&T Releases UNIX System V/386 3.2

Microsoft's XENIX got a boost from AT&T with the release of UNIX System V/386 3.2, making XENIX a proper version of UNIX. This lets current XENIX users who update to version 3.2 run all standard UNIX System V programs. This step follows AT&T's plan of unifying all major variants of UNIX. XENIX is the most popular microcomputer version of UNIX, so AT&T made it a priority to bring XENIX users into the UNIX fold. With the new version, Microsoft and Santa Cruz Operation, the major retailer of XENIX, can use the the UNIX trademark in their advertising.

## Vendors Support New Intel/ DCA Communications Spec

Intel and DCA's new Communicating Applications Specification (CAS) garnered immediate support from major communications hardware and software vendors, indicating that it will be the wave of the future for message and picture transmission between personal computers. The CAS is a public domain specification that is freely available to anyone interested in conforming to it. Programs that follow CAS can send information to CAS hardware without having to worry about controlling a modem. Hardware that follows CAS can communicate with all other CAS hardware, as well as FAX Group III machines. This will greatly reduce the burden on the user for telecommunicating.

CAS comes at a time when the American FAX market is beginning to catch up with the already-established markets in Asia and Europe. Any document that can be sent to a printer can just as easily be sent to CAS-compliant FAX hardware. Although the initial specification only covers FAX-like hardware, future extensions will allow programs to transmit information over standard modems as well as network connections using the same protocols.

Intel compares the usefulness of the CAS standard for communications to that of the EMS standard for expanded memory. CAS makes it easy for a software company to include support for sending data through CAS as was seen at the press conference, where Microsoft, Symantec, Ashton-Tate, Borland, Crosstalk and Wordtech announced immediate or imminent software support for CAS hardware. Novell also announced that its network hardware and software will support CAS in the future.

The only hardware that currently supports the CAS sending protocol is Intel's new Connection CoProcessor board for the PC, although many hardware manufacturers have indicated that they intend to enter the market this year. The Connection CoProcessor runs at about the same rate as a 9600 baud modem, and can send and receive standard Group III FAX messages. The board costs $995, and other manufacturers believe that their competing boards will initially cost between $500 and $800. If the CAS standard becomes as popular as many industry analysts believe, the CAS boards could drop in price to around $300 within two years, similar to the way that high-speed modem prices have continued to drop as they become more popular.


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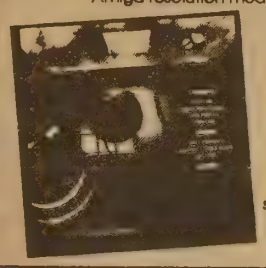

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|---|---|
| Heapsort Benchmark | Turbo C 2.0 |
| .OBJ size (bytes) | 843 |
| .EXE size (bytes) | 6896 |
| Execution time (seconds) | 8.1 |
| **FEATURE COMPARISON** | |
| Integrated debugger | Yes |
| Inline assembly | Yes |
| Auto dependency checking | Yes |
| EMS support for edit buffer | Yes |
| Device-Independent graphics | Yes |
| Number of memory models | 6 |

**Price** **$120**

## And Turbo Pascal 5.0

| Turbo Pascal 5.0 | |
|---|---|
| Sieve Benchmark | Turbo Pascal 5.0 |
| .EXE size (bytes) | 1440 |
| Execution time (seconds) | 6.15 |
| **FEATURE COMPARISON** | |
| Integrated debugger | Yes |
| Overlays, including EMS support | Yes |
| 8087 floating-point emulation | Yes |
| Turbo debugger support | Yes |
| Procedural types, variables, parameters | Yes |
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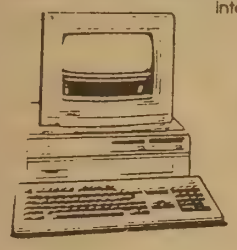

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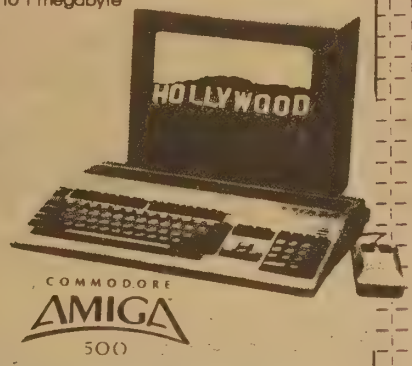


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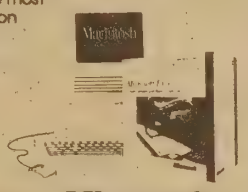

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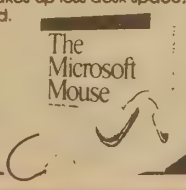


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# Online Sex "Education"

Most of my generation received their initial sex education on the playground blacktops of their elementary schools. We huddled around a purloined *Playboy* or quietly snickered at the crude, though anatomically correct, sketches found on public restroom walls. But if the Justice Department, *a la* Ed Meese, is to be believed, kids today are receiving an equivalent education via modems and computer bulletin boards.

The buffoonery of the Meese era would be laughable if his influence weren't being taken so seriously by other government agencies—particularly, the Federal Communications Commission.

On August 30th of this year Supreme Court Justice Sandra Day O'Connor allowed the FCC to begin enforcing a new law banning sexually obscene dial-a-porn message services, pending the full court's review of the statute. O'Connor denied a request by Sable Communications of California Inc. for a stay of a Los Angeles federal court law banning telephone services whose messages fall under the legal definition of "obscene."

The justice's denial of a stay means that the government ban on obscene telephone messages is in effect and that the FCC will begin enforcing it, according to Diane Killory, FCC general counsel. However, the law only applies to interstate dial-a-porn calls and those in the District of Columbia.

## BBSes At Risk

In December of last year, the FCC began an enforcement action against two dial-a-porn services operated by Sable for allegedly not taking precautions to keep pornographic telephone voice messages from children. As mentioned above, Justice O'Connor has allowed the FCC to continue with its enforcement.

If dial-a-porn services are being targeted, can BBSes be far behind? And what of commercial online services, such as The WELL, where topics in the Sexuality and True Confessions conferences often lay out, in fairly explicit detail, all sorts of sexual forays and adventures? Will these be deemed obscene and therefore susceptible to FCC enforcement?

It's not clear if the same rules apply to telephone lines used by computers. I spoke with Greg Vogt, FCC common carrier enforcement chief, who said computer bulletin boards may not be under the agency's jurisdiction because the signal is altered by a device, such as a computer program.

But Vogt's comments only point to the fact that such issues haven't yet been tested within the FCC. "We haven't had to rule on any pornography issues via computers," said FCC special council Anne Siegel. The law on telephone pornography, she said, "has so far only focused on traditional dial-a-porn messages. The statute would arguably apply whether it's a telephone or electric bulletin board."

*Copyright © 1988 by Brock N. Meeks. All rights reserved. Brock Meeks is a San Diego-based columnist. When last seen, his list of BBS numbers was not covered with a brown paper wrapper—yet.*

## To Ban Or Not To Ban

Is there any validity to the so-called "online pornography" issue?

According to UCLA communication law professor Dan Brenner, a modem in the hands of a minor opens a wellspring of online pornography replete with animated nudes, sex-filled BBSes and files filled with off-color jokes.

"If parents let their children use a computer and modem without supervision, it's not a lot different from allowing them to watch cable TV or the VCR," said Brenner.

It's no secret that sexually oriented BBSes have proliferated. On hundreds of "adult boards" across the nation, you can readily access any number of sexually oriented jokes, pictures, sexual message bases and "dial-a-match" dating services. And from my own perusal of underground BBSes (most operated by teenage "pirates"), their sexually oriented discussion has all the flavor and carnality of my bygone locker room years.

A more insidious attempt to portray the online world as a depository for porn is that of the Justice Department. For three years the DOJ has carried out a campaign to convince government agencies and congressional subcommittees that BBSes are a main pipeline for child pornography.

According to Robert Showers, executive director of the Justice Department's National Obscenity Enforcement Unit, "The computer was the one device we found in several pedophile cases. Computers kept coming up; they linked onto them," he said, referring to online pedophile networks.

But when pressed, Showers declined to cite specific instances; he couldn't or wouldn't provide conclusive proof. However, he insisted that pedophiles now use floppy disks and electronic bulletin boards to send messages and pictures with child pornography from computer to computer.

"You can actually reproduce a picture on the computer. You can produce the child pornography and send it one computer terminal to the other," said Showers. And then he dropped the bomb: "I think law enforcement is just beginning to get the intelligence information on the use of computers in child pornography." Meaning, of course, that someone in the Justice Department is perusing BBSes just looking for an excuse to link child pornography to the online community.

Before I am branded as a defender of child pornography, let me state: I am not. I abhor it. And while I am all for the free flow of information and ideas, I would not support the "rights" of pedophiles to exchange pictures or information on potential victims via a BBS.

I am, however, resolutely opposed to the methodology and disinformation campaign being foisted on our lawmakers by the DOJ concerning the online pornography issue.

**For three years the Department of Justice has carried out a campaign to convince government agencies and congressional subcommittees that BBSes are a main pipeline for child pornography.**

## High Tech Erotica

The vast majority of sexually oriented online material is not exploitive of children. In fact, I have yet to see any evidence of pedophiles using a BBS to pander to their disease. Most sex-oriented material available online is also readily available via traditional channels: magazines, videos, cable TV and telephone.

Such online erotica are commonly made available due to readily available scanning techniques which digitize pictures found in magazines, and in some cases, from reproducing an image from video tape. In the case of some Macintosh files, the pictures are even animated.

In my experience, BBSes carrying such sexual content have a warning such as "Caution: Adult material." And the sysops I've spoken to generally adhere to a strict policy that has them calling a potential user to verify that the user is indeed over 18 years of age. However, given the built-in ambiguity of the medium, judging someone's age is a tough call to make over the telephone.

And while such screening would seem adequate, the principle falls short in practice. A random call to an adult-oriented board revealed a directory of files that required no age limit and offered a "free look" at several so-called "adult" files. These included "Intersex," "Orgy," "Nudepics," "Porno," "Xpics," "Slave" and others more graphic or suggestive.

"Animated sexual display," said the description of one file. Others are billed as "X-Rated Game — Strip Poker is just the start!!!" and "Gay Guys" and "Three Naked Ladies."

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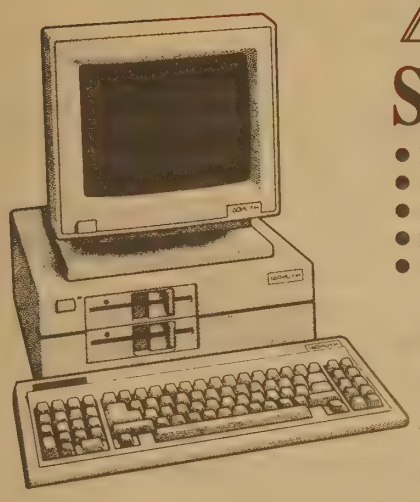

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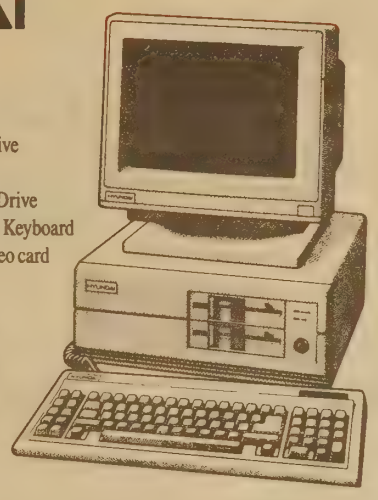

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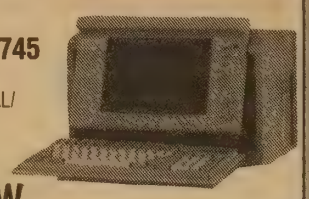

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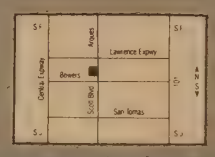


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# INDUSTRY ISSUES

mated pictures of couples making love, files of crude jokes, adult games and a nude picture of an actress appearing on the computer screen.

A BBS in New York offer the "Eroticomm party line," an "Open X-Change" for erotic stories, a Sexshop Personals service to sell and swap merchandise and "X-mail to exchange lusty messages." All devoid of any age limits.

I find such shoddy screening policies saddening. With rights come responsibilities. Disregard the latter and you will be denied the former. I guarantee it.

## Pressing The Limit

Pornography via BBS is a new legal issue. Agencies such as the FCC are grappling with how such online communications fit within First Amendment protections of free speech and press. The issues are far from being resolved. And officials at the FCC are more than willing to err on the side of caution, determined to carry out their court appointed mandate with religous fervor.

Such "hunting" by governmental agencies builds a dangerous platform. Sysops of boards carrying sexually oriented messages may, in the near future, find the FCC knocking at their door, demanding that all "offensive material" be withdrawn from the system. Such actions are likely to be couched as a program predicated on a "good neighbor" policy. In reality, it's hard-core censorship.

Users, too, are not immune. Transferring obscene materials via computer might very well be considered a crime.

In November of 1987, President Reagan proposed legislation "making illegal the computerized network that child molesters and collectors of child pornography have developed."

The bill was introduced in Congress with arch-conservative Jesse Helms as its leading sponsor and has since garnered overwhelming support in both houses. But the bill takes a much broader approach to pornography. If passed, it would endanger every online conference that deals with the bill's sweeping definition of what is obscene.

"Technology generally outstrips the law. When technology moves faster the law tries to catch up with it," Showers said.

"Looking at it as classic freedom of speech issue, people do have the right to look at what they want in the privacy of their home," said UCLA's Brenner, noting however, that "criminal activity is not protected, no matter where it happens."

Brenner said computer porn purveyors must make a good faith effort to bar underage users. However, he couldn't define just how extensive those "good faith" efforts must be.

And, so it appears, the FCC is making a "good faith" effort to assure that BBS users and sysops adhere to their mandated definition of morality.

If the Justice Department really wants to take a bite out of computer porn, I'd suggest a more rational approach: hammer on copyright violation. Those scanned pictures are protected under longstanding copyright laws. Pictures, like words, have copyrights. And 99% of all sexually oriented graphics have been scanned (copied) and uploaded somewhere in direct violation of the federal copyright laws. So, my dear public officials, enforce the enforceable, and leave the morality where it belongs—up to the individual. □

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# Wish List For The Lap Mac, 4-D CAD, And Why I Won't Buy A PS/2

This column is for those who convert the present into the future—and for those voyeurs wishing to watch the conversions.

## Key Desires For The Lap Mac

As Mac-lovers know, modern micros have pointing devices as part of their user interface. Mice may be nice for desktop devices, but they crawl poorly on laps. With the laptop Mac forever forthcoming, perhaps this proposal is still in time:

"Adequate" laptops of the future should have one or more pointing devices that don't require a flat surface. At a minimum, there should be a small trackball. Two trackballs would be better—one in each lower corner of the keyboard area.

Each should have at least one or two program-definable buttons adjacent to them, including thumb buttons. This allows four fingers for pointing and the thumb for picking/clicking.

Among the advantages of symmetric trackballs: They acknowledge that most users have two hands. They avoid "handedness discrimination" (left-handed versus right-handed).

For menu selection and more limited pointing—where the objects can be separated on the screen by the size of a finger-end—touch screens should be offered, at least as options.

Of course, other laptop makers may be expected to offer these rodent-free features, but the Lap Mac should be the first—if it proposes to be "The First."

## 4-D CAD & Other Drawing Deliberations

For several years, I've been a delighted user of *AutoCAD* — the potent computer-aided drafting system with the "high Mack factor" from AutoDesk in Sausalito. (Aside: "Mack factor" is a term I first heard from Bill Godbout, the ex-IBM computer engineer and entrepreneur who founded Godbout Electronics, Compupro and numerous other massive micro ventures. We agreed that he built computers with a high Mack factor—heavy-duty machines built like Mack Trucks.)

Anyway, continuing CAD comments:

CAD systems should include a 4-D capability — with the fourth dimension being the usual one of time. Thereby, one could attach an optional time attribute to drawing components. Then, upon command, the drawings of a system to be constructed could be displayed or drawn illustrating the desired construction sequence.

Picking nits: One should be able to ask for the distance from a point to a line segment—or its projection—without requiring the extension of the segment to the point of perpendicularity or the construction of the perpendicular. Similarily, it should be simple to query the distance between parallel line segments (or their projections), or between a point and a plane ( with the plane defined in any of the classical ways), or between a plane and a line segment parallel to the plane.

*Copyright © 1988 by Jim Warren. All rights reserved.* *Jim Warren founded the West Coast Computer Faire, the* Silicon Gulch Gazette *and* Infoworld *newspapers, Video Initiative, and the DataCast proposal for broadcast-based paperless electronic newspapers utilizing personal computers. He was the founding host of the PBS* Computer Chronicles *series, founding editor of* Dr. Dobb's Journal, *and founding president of the Microcomputer Industry Trade Association.*

## An 80xxx Public-Domain Bus

I won't buy a PS/2 computer. There's no telling how quickly Big Blew will-again-produce a design that arbitrarily and unnecessarily renders obsolete the investment of IBM customers in such current IBM products. (In fact, they may have already started—announcing the PS/2 Model 30 286 in mid-September . . . which has the capabilities of the PS/2 Micro Channel, but doesn't use the PS/2 bus.)

Frothing further: IBM showed infuriating arrogance when it—unnecessarily—designed the PS/2's bus in a manner that was incompatible with IBM's multitude of previous IBM PC-bus products. It displayed ample disregard for the loyalty shown by the several million

IBM customers who bought IBM PC-bus equipment and IBM PC add-in boards. Many of those IBM customers—who paid IBM's higher prices—foolishly presumed their loyalty would be honored by the Big Blue Monolith; that their significant investment would not be unnecessarily made obsolete.

I have long said that responsible industry members should join in designing and adopting a public-domain bus that meets the needs of a 32-bit world, while retaining compatibility with the many millions of perfectly good PC-bus add-in cards already in use.

On Sep. 13th, Compaq, Intel and Microsoft announced what *may* be such a standard—called "EISA," Extended Industry Standard Architecture. To put it mildly, I was gleeful when I read of it.

However, there may be some bugs in the Vaseline. Michael Slater, Editor of the *Microprocessor Report,* says he received additional details regarding EISA specs and licensing. Seems computer and board makers desiring to use what many think of as being a public-domain bus standard must get its details from a Washington DC law firm, sign a nondisclosure agreement, pay "administrative" fees, and have the "option" of signing a licensing agreement. What's more weird—in this fast-moving industry—is the allegation, attributed to IBM V.P. Bill Lyons, that EISA products "won't be out for 18 months."

**I have long said that responsible industry members should join in designing and adopting a public-domain bus that meets the needs of a 32-bit world, while retaining compatibility with the many millions of perfectly good PC-bus add-in cards already in use.**

Questions: Doesn't IBM own over 25% of Intel? Isn't Microsoft furnishing IBM their PS/2 operating system? (The law firm handling EISA stuff is Bishop, Cook, Purcell & Reynolds, 202-371-5921.)

## More Scuba-Speak For Diverse Divers

An increasing number of dive computers have been offered to the million-plus scuba divers in the last decade. These are handheld gadgets that report time under, depth, maximum depth, rate of ascent, nitrogen absorption, safe time remaining, etc. Some also report tank pressure, air remaining, etc.

As yet, there are only traditional needle compasses—often very finicky about being level. So—let's include digital compasses in the dive electronics; may as well have all the dive instrumentation equally (un)reliable.

Also: In my last column, I asked about computer bulletin board systems for scuba divers. Clay Phipps of Santa Clara promptly identified two—but only

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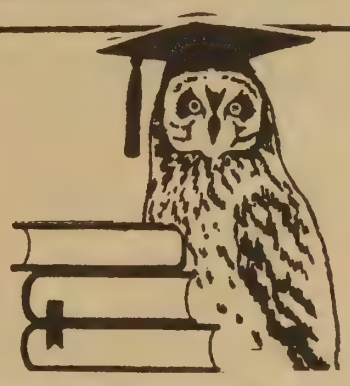

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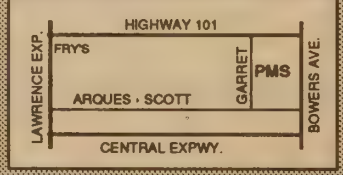


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## Questions: Doesn't IBM own over 25% of Intel? Isn't Microsoft furnishing IBM their PS/2 operating system?

two, and none in California (tsk, tsk). Both are full duplex, 24 hours/day, 7-E-1:

Divers Net, 813-332-0617, 1200 baud has been run for the last three years by ABC Sports Store, 1915 Linhard Ave., Ft. Myers FL 33901. They are now actively seeking someone to take over the operation —after logging 120,000 calls from 40,000 divers.

The other one is Diving Board, 416-683-6397, 300-1200 baud, 47 Cowling Crescent, Ajax, Ontario L1S 2Z6, Canada. (Check future *MicroTimes* BBS listings for newfound divers' BBS'.)

Sadly, Clay added: Computer-owning divers seem to "maintain a one-way relationship between computing and diving. The computing is used to bring in the bucks to subsidize their diving, but the diving is not used to justify spending more bucks on their computers."

This seems ripe for entrepreneurial and altruistic ventures, given the several million certified scuba divers in North America and their ongoing need for information exchange on equipment, dive sites, dive buddies, etc.

And, yes, my feet fit fins as well as skates; see you down under.

## A Need [Still] Unfulfilled: A Meta-BBS

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Jim Warren will be the keynote banquet speaker for this year's National Conference of the Computer Professionals for Social Responsibility. His talk is titled, "Computers, Information and Politics." CPSR'88 will take place Nov. 19th and 20th in Palo Alto, California. For more information, contact: CPSR, Box 717, Palo Alto CA 94301; (415)322-3778.


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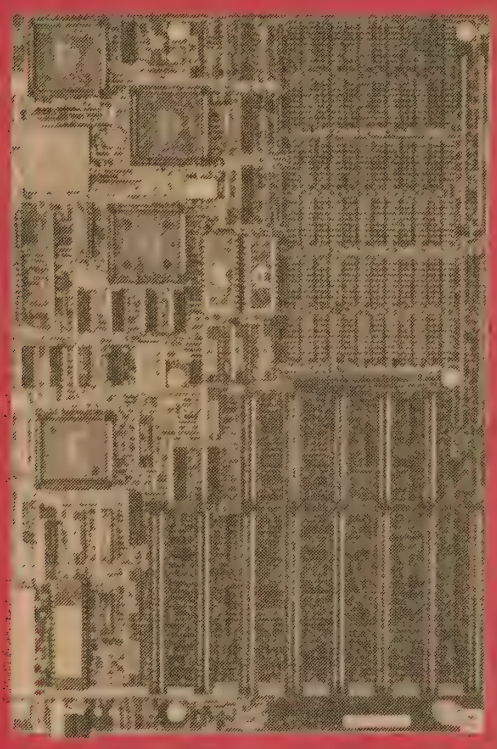

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# Hard Disk Maintenance With Shareware Utilities

**By Lenny Bailes**

Now that hard disk usage has become almost universal with PCs, people are overcoming their fear of what were once esoteric mysteries in personal computing. Since hard disks do crash and directories do get scrambled, people are gradually learning about the dreaded FAT (file allocation table), directory and boot sectors of their disks, and about the need to clean up fragmented files for backup and speed considerations.

An industry of commercial disk maintenance utilities has grown up from the pioneering efforts of Peter Norton. The *Mace Utilities*, *PCTools*, *VOPT* and the *Norton Advanced Utilities* all promise to do magic with your files, protect you from data loss, speed your disk access, etc.—for a price.

No doubt, if you still regard your hard disk as a mysterious and terrifying black box, it may be worth the price for you to hire one of these wizards to make the appropriate blessings over your data. But if you're being swayed by statements that go "This is the only program which can optimize your files," "Only 'XXX' can unformat your hard disk..." etc., etc., you should be aware that the shareware world is full of alternative utilities. Some of these may be quickly hacked together and of dubious quality, not worth risking your data on, but others are constructed in a craftsmanlike and professional way. Here are some shareware programs that duplicate options available in the commercial marketplace or offer additional capabilities:

## Optimizer

*DOG101A* (DiskOrGanizer) is a disk optimization utility written by G. Allen Morris. It has been around on bulletin board systems since 1986, and is about the safest and most reliable software of this kind you can use.

The theory behind a disk optimizer is that when you are constantly adding and deleting files to a hard disk, DOS does not write them in a continuous sequence, but instead fits bits and pieces of different files into the first

*If you're being swayed by statements that go "This is the only program which can optimize your files," "Only 'XXX' can unformat your hard disk..." etc., etc., you should be aware that the shareware world is full of alternative utilities.*

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available space. This results in what are called fragmented files. These are difficult to recover if accidentally erased, and difficult to read or back up because the heads of the hard disk must constantly skip back and forth instead of following a continuous path. The accumulation of fragmented files is also what makes a hard disk slow down in its execution speed as it gradually accumulates more and more data.

A disk optimizer like *DOG* examines the structure of your directory and file allocation tables, and then moves the physical location of the files on the hard disk until they are placed most efficiently. *DOG*'s documentation warns you to unprotect copy-protected software first and avoid optimizing if you've installed memory resident utilities which write to the disk you'll be working on.

There are four different ways which *DOG* can order your disk from the command line, and an advanced option. The advanced option permits you to order your files in any way you want through creation of a control file.

**Fast optimization** skips over files which are contiguous and moves only files with fragmented clusters, attempting to fit complete files into spaces created between contiguous files. If there's no room, the fragmented files are fitted into two or more empty areas between contiguous files.

**DO** (Directory Order) unfragments all files and maintains them in sequence on the disk in the order which they appear in the directory. This is the way to optimize if your most frequently used programs are located first on the drive, and less frequently used software was installed subsequently.

**Packed order** maintains the original directory order on the disk, but compresses all files on the disk to the inner area, leaving no space between the files. All free space is left on the outer area of the disk.

**Fragmented order** takes all nonfragmented files and writes them to the disk first in the order of their appearance in the directory. Then *DOG* cleans up the fragmented files and appends them at the end. This gradually groups the files which are constantly rewritten at the outer part of the disk. The executable programs, which don't change, are placed closer to the FAT and Directory sectors, where they will be loaded and referred to by DOS a little more quickly.

The fifth option with *DOG* is to customize the placement of files on the disk in any order you want by listing them in a control file. A file locator utility is provided for this. DOGMAKE will automatically locate a file's path information and write this to a standard text file. You type "Dogmake File1.Com"..."Dogmake File2.Com," etc., and the path information for each file is copied into the control file in the order you specify (* and ? wild cards are permitted for multiple entries). Additional options allow you to specify that certain sectors of the disk be left free, tell *DOG* to ignore certain sectors while moving files (for copy protected software which can't be deinstalled) and direct *DOG* to automatically compact directories (delete extraneous directory information about deleted files).

*DOG*'s author is currently working on an update, and several BBS systems may carry beta versions of a *DOG 2+*. The new version of *DOG* is reputed by its users to be just as fast as Golden Bough's *VOPT* in its organization of files, but others have reported problems with it which still have to be worked out. *DOG 101A* is a little slower, but it has stood the test of time. It works on systems with oddball controller cards and irregular boot sectors, and won't screw up your disk. If the worst happens and you suffer a power outage, the files being moved are saved in a backup, and all you need to do is run CHKDSK/F to clean out the stray extra sectors.

## Disk Editor

Many people use the DEBUG utility provided by Microsoft to alter information in program and overlay files the way older computer enthusiasts edit ASCII files with EDLIN. They ponderously edit one line at a time! The hexadecimal editor introduced by Peter Norton in the first *Norton Utilities* gave PC users the ability to view and edit entire disk sectors a screenful at a time. If you're trying to repair a damaged directory or examine the boot track of a stubborn hard disk, you want to see and change much more information on the screen at once than you can with DEBUG.

*ZIPZAP* takes the concept of the Norton editor a few steps further, bringing more word processor capabilities to a full-screen sector editor. There are keystrokes to move the cursor around the screen to the beginning or end of lines, perform string searches in either hexadecimal or ASCII and highlight specific blocks of code to be modified. Editing can be done in either HEX or ASCII. You can see a file in both modes simultaneously, and you can advance quickly to any sector in a file or on the disk, save changes to a backup file or modify the original disk file.

One use I've found for *ZIPZAP* is in dealing with generic Hewlett-Packard Soft Fonts, all of which have slight variations in their header information, depending on the source of their generation. Some HP fonts are created without consistent information in the header about whether they're intended for HPLaserJet, LaserJet+ or LaserjetII. They don't work properly with some printers, display programs or font editors. Usually this is because the byte in the file header which describes the length of the header is inaccurate. Since I know where to look (bytes 4 and 5 of the header), I can load an HP Soft Font into *ZIPZAP*, look for the <Escape>(##) code in the first four bytes and use the ASCII mode to type in the correct two numbers to match the actual length of the file header.

## Directory Maintenance

Last year, a programmer named Michael Mefford won an award for his two directory maintenance utilities, *DR.COM* and *CO.COM*. One lets you remove, rename and view files. The other one allows block copying, deleting or moving of groups of files. In a given subdirectory you can tag multiple files or the whole directory, copying, deleting and moving files with or without confirm. *DR* has a 7 bit filter which allows viewing of *WordStar* documents as well as ASCII text. Subdirectories can be displayed by date, alphabetically by file name, file extension or size. *DR* and *CO* are *PC Magazine* utilities, which may be downloaded freely by noncommercial users from the PC Magazine BBS, or found on many other systems. Michael Meffort has also written a new, more powerful update to these programs called *DIRMAGIC*. *DIRMAGIC* is currently only available as a gift with subscriptions to Ziff-Davis' *PC Computing*.

## Norton Clone

Finally, for those who would like a disk sector editor, optimizer and directory sorter combined with all of the other options of the *Norton Utilities*, a couple out of Texas has authored a shareware package called *The Disk Commando Utilities*.

*Disk Commando* is an unabashed clone of the *Norton Utilities*, offering 15 individual functions and an integrating shell. The package includes an undelete utility, disk tester, disk map, timer, file viewer, attribute changer, sector editor, protection against accidental hard disk format and all of the other features you get with the higher priced spread.

The file attribute feature is useful for determining at a glance which files will be copied and which ignored by a backup utility. The attribute bytes of a file in your directory allow four options. The read-only byte tells DOS the file is to be treated like the DOS startup file, and the archive byte marks a file as having been previously copied by a file maintenance utility. You can set entire subdirectories to be ignored or backed up by changing the archive byte. You can also alter the read only, hidden or system attributes of files.

*All of these utilities are available on public bulletin board systems.*

This reviewer stopped short of actually formatting his hard disk to confirm that the unformat utility is functional, but can confirm that all the other features work as you would expect them to. The trial version of this package has an annoying background screen which flashes blinking dollar signs at you, but if you register, the authors will send you a copy which doesn't do this.

All of these utilities are available on public bulletin board systems throughout California.

**RESOURCES**

*DOG 101A* from G. Allen Morris, 1411 10th Avenue, Oakland, CA 94606 Suggested registration $50.

*ZIPZAP65* from Keith G. Chuvala, 812 E. 15th St., Winfield, Kansas 67156, available for d/l on 9th & Main BBS, 316-221-3276, 300/1200/2400 bps. No charge to noncommercial users.

*CO* and *DR*, directory maintenance utilities written by Michael Mefford, copyright Ziff-Davis Publications, available on PCMag BBS Service, 415-598-9100.

*THE DISK COMMANDO UTILITIES*, v.2.00, from Sandy & Shane Stump, Box 27165, San Antonio, Texas 78225 (Voice: 512-670-8835). Registration $40.

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# Adobe & The PostScript Future

In the world of consumer products, the most successful inventions tend to be actual physical things: cars, boats, microwaves, TVs. In the software world, that rule doesn't really hold. Fortunes are made and lost on abstractions, ideas and their implementations. No one ever baked a pie in a graphical interface, but lots of writers and artists would have a hard time living without one.

One of the most successful ideas to come out of the Bay Area's high tech frontier is PostScript, the page description language from Adobe Systems of Mountain View. Like the *idea* that a graphical interface should give you WYSIWYG, PostScript is the *idea* that a laser printer should be able to print anything—from halftones to lines to curves to fonts to bitmaps. Its implementation is the PostScript interpreter—the brains and the driving force behind a cadre of laser printers like Apple's LaserWriter NT, NTX and the Linotronic 300. Since the release of the first Apple LaserWriter in 1985, PostScript printers have cornered about 1/3 of the laser printer market, and Adobe has licensed its interpreter to 30 OEMs including both Apple and IBM.

Adobe's roots can be traced to Xerox PARC (Palo Alto Research Center), a research organization Xerox founded in 1972 to design the *office of the future*. The list of PARC alumni reads like a who's who of high tech—among them Alan Kay and Larry Tessler of Apple, Bob Metcalf of 3Com, Dick Ladell of Metaphor, Eric Schmidt of Sun, and John Warnock and Chuck Geschke of Adobe. At PARC, these computer aces were basically given carte blanche to invent their version of the office of the future—and they did. Back in 1977, Xerox had most of what exists today in the Mac, plus a lot more.

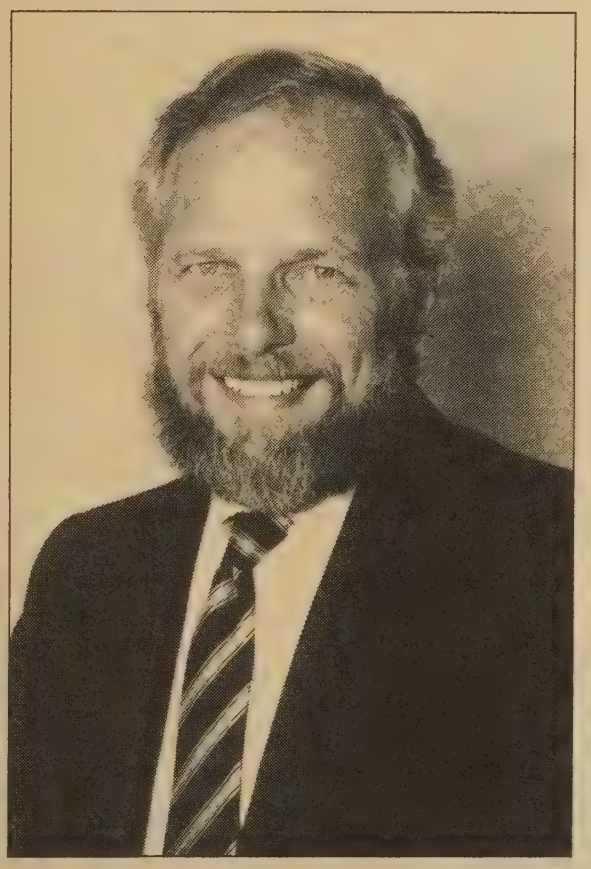
Unfortunately, Xerox's peculiar weakness was an inability to bring this brilliant engineering to fruition as real products. And as it became clear to the PARC engineers that their work would remain a largely intellectual exercise at Xerox, they began leaving. The common vision they shared gradually began to trickle into the outside world, captured in products like the Mac, LANs and PostScript.

Warnock and Geschke's particular expertise was in laser printers and imaging. They left in 1982 to form Adobe Systems, where their first task was to refine and extend the laser printing protocols they developed at PARC. This was *not* the work of a couple of afternoons. Some aspects of PostScript posed fiendishly hard problems, as many would-be designers of PostScript clones are discovering.

One of Adobe's biggest challenges was fonts. In the laser printers used at PARC, as in the HP LaserJet, fonts were stored and printed as bitmaps—basically, collections of dots in the shapes of letters. Unfortunately, if you try to enlarge, compress or rotate bitmaps, the appearance of the letters quickly degrades. So Adobe took a different tack. They decided to store fonts as outlines of individual letters. Unfortunately, outlines also have their problems. If you take an outline at, say 16 points (a point is 1/72 of an inch), and expand it to 72 points, it distorts—the letters' edges get very jagged. Similarly if you take that same 16 point outline and reduce it to 5 points, the letters start looking like little black rectangles.

So Adobe built intelligence into their fonts. Each character is actually a separate PostScript program.

# *President John Warnock On Printer Technology, Display PostScript, PostScript Clones and Steve Jobs' NeXT Computer*



*By Steve Guttman and Mary Eisenhart*

**Photos: Michael Jay**

Inside these programs are special routines Adobe calls "hints," which change the construction of the outlines as the type is scaled. These "hints" are highly proprietary and are encrypted inside Adobe's fonts. They are the reason that most people believe Adobe fonts look better than other vendors' fonts at small and large point sizes.

But it wasn't just technical chops that put Adobe on the map. In 1983 and '84, a Harmonic Convergence of sorts occurred as Apple, Aldus and Adobe all learned of each others' aims and existence. Steve Jobs needed a letter-quality printer for the Macintosh, and daisy-wheels couldn't cut it in the world of graphics and multiple fonts. The technology that Adobe was developing dovetailed beautifully with Jobs' plans for the LaserWriter. At the end of '83 Adobe signed a licensing agreement with Apple to produce the PostScript driver and the original fonts for the LaserWriter.

Meanwhile, in Seattle, Paul Brainerd had formed Aldus, intending to marry text and graphics in desktop publishing. PostScript and the Mac gave Aldus the technology they needed to make desktop publishing a reality—the behind-the-scenes hardware and software machinations. But *PageMaker* gave consumers a reason to buy into that technology, and in 1988 that's big business.

Since the release of the first LaserWriter in January of 1985, Adobe has been on a roll. It's signed licensing agreements with 30 OEMs, which account for about 70 PostScript laser printers. It now sells 69 typeface packages containing over 300 typefaces. And this past summer it released the first set of Kanji faces in PostScript. Adobe has more than doubled its revenues and profits each of the past three years ('84 - '87) and June's earnings continued the trend with revenues up almost 100% from the previous year.

Not content with inventing only one "breakthrough" product, in March of '87 Adobe introduced the revolutionary *Illustrator*. *Illustrator* was the first real drawing tool for graphic artists. Programs like *MacDraw* and *SuperPaint* were great for simple art, but lacked the control and finesse needed by serious artists. *Illustrator*'s special contribution was the "pen tool," a drawing tool which uses PostScript's native Bezier curves to construct irregular shapes that can be easily modified. It also has the ability to use scanned art as a template over which a final piece of artwork can be traced and manipulated. *Illustrator* was voted "Best Graphics Product," "Best Business Productivity Tool," and "Best of the Best" by the Software Publisher's Association in their 1987 rating of Mac and IBM software. The current offering, *Illustrator 88*, adds freehand drawing capability and other powerful features.

In the future lies Display PostScript, a version of PostScript that brings its power and flexibility to computer displays. Adobe transferred its technology to computer monitors and introduced it in the beginning of 1988. Popular opinion holds that Display PostScript offers the only currently available way of getting true WYSIWYG, as the fonts and imaging models of the display and printer are the same. Display PostScript will make its debut in a new product on Oct 12 when Steve Jobs introduces the much anticipated NeXT computer. But already it has been endorsed by a number of vendors including DEC, and rumors of an IBM deal have also been heard.

At the September Seybold Desktop Publishing Conference, Adobe announced two new products: The long awaited PC version of *Adobe Illustrator* made its formal debut. *Adobe Illustrator, Windows Version* runs under Microsoft *Windows* v2.0, and promises to bring its artistic sensibilities to the DOS world. It will ship by year's end and will retail for $695. Adobe also announced a unique new product called *Font Folio*, a hard disk containing the entire Adobe Type Library, which now comprises over 300 faces. *Font Folio* is designed to be connected to an Apple LaserWriter NTX, where it gives the printer immediate access to all Adobe's typefaces (no more going out for coffee while your fonts download). The product will begin shipping in November and will retail for $9600.

In addition, Adobe added 13 new typeface packages to the Adobe Type Library, and revised installation and downloading software for all its PC fonts. The new typefaces and the PC font upgrade are available now.

We talked with Adobe's president and CEO, John Warnock, at the Seybold Desktop Publishing Conference, shortly after he'd announced that Adobe's Display PostScript would be appearing on the long-awaited NeXT workstation from Steve Jobs.

## What was the need PostScript was designed to address?

There was this interesting anomaly. People have always said that graphics were important for business, or graphics were important for the computer industry, and what people meant by that were different things. Traditionally, all the graphics that have been in the computer business came out of the engineering side, so they were sort of CAD/CAM graphics; vectors, stick figures and things like that. Our experience at PARC taught us that that was not what businessmen buy graphics for. Businessmen buy graphics for the 500 years of graphic arts tradition; in other words, typeset documents, headlines, line thicknesses and weights and endings, halftones. In other words, the 500 years of graphic arts tradition is what business really needed. There was no printing protocol that could simulate that on computer printers.

## What was the state of phototypesetting at that time?

There were all these vertical systems that people used, and service bureaus—it was a service oriented industry where you would become specialized at producing documents and then industry would come out to get documents to be produced that way. And so you were a CompuGraphic shop, or in the Linotype tradition, or in the Varityper or ITEC. They were all closed and proprietary and they didn't trade information. They had separate font libraries —everything was separate.

So what happened was—we felt, gee, it would really be neat if we could unify some of the principles and build a page description language so I could describe any page, whether it's an advertising page, or halftones, or line art, or whatever.

## What was the state of laser printers at that time?

They were expensive. They were about $20,000 - $30,000 for the cheapest of the laser printers. Four things came together to make Adobe successful: One was the Mac with the graphical user interface. Another was a drop in the price of laser printers; Canon came out with the OE/PCX. That was a very

big turning point. The other thing was memory prices dropped significantly.

**Those were the days. . .**

(laughs) Yes. And the fourth thing that happened was that Aldus came along out of the publishing industry and felt that they were going to make a market in the personal computer business. And those four things happening at the same time is what made desktop publishing.

**Was that fortuitous?**

Very! Just luck, blind luck. I mean, independent activities all coming together at the same time.

**I never particularly read that it was one of Steve Jobs' big agendas.**

No. What Steve's role was in it is that we got to know Steve in the summer of '83, just after we formed the company. And we showed him some of the initial prints that we got off on some of the laserwriters, and he just fell in love with the technology. He just really liked it; he liked the style, he liked the approach. And he needed a high resolution printer for the Mac. He couldn't do it with preformed characters, a daisy wheel, because of the graphical nature of the Mac. And the ImageWriter was not high enough quality. And they had tried to solve some of the problems, and they ran into the same brick wall that everyone else runs into. This is much harder than it looks!

So he fell in love with the technology and in the end of '83, we signed a contract with Apple to produce the LaserWriter. We worked through the last part of '83 and all of '84 in putting together the LaserWriter, and in January of '85 the LaserWriter was announced.

**Did you have any input into the Mac operating system itself, because that's a font-based operating system?**

Not really. They had gotten most of New York and Geneva and all of those things together by the time we started to interface. Those were not PostScript fonts—those were the very first ones that were announced with the Macintosh. That was in the '84 time frame; the Times and Helvetica came on as sort of an afterthought. So there was a close enough fit between QuickDraw and PostScript so that all of this worked very well, and they worked very hard on making the interfaces so that they were fairly transparent to the software developers.

**How did PostScript come into being? Because it's such a brilliant concept. Did it just come to you at three o'clock in the morning—"Ah, the solution!"?**

(laughs) No, no. It's actually almost 12 -13 years old now. I was at a company called Evans and Sutherland that did high performance graphics equipment, and we needed a language to build very complex three dimensional databases for flight simulators – this is very esoteric stuff. So we decided, because we never knew what hardware we were going to be running this on, to make an interpretive language where at the very end of the process we could build the database that would run on the simulator. And that language was essentially PostScript—the basic language structure of PostScript.

When I left Evans and Sutherland and went to Xerox, I said "This was such a good language, I'm going to reimplement it." So I rewrote the code to make PostScript work; it was called JAM at Xerox. I made the code work at Xerox and we used it as a prototyping tool to study both laser printers and interactive displays. And so we built applications

Adobe's John Warnock: "Our experience at PARC taught us that businessmen buy graphics for the 500 years of graphic arts tradition; in other words, typeset documents, headlines, line thicknesses and weights and endings, halftones. In other words, the 500 years of graphic arts tradition is what business really needed."

that used this tool, people liked it, and then Xerox said, "We need the next generation page description language, we need the next generation printing protocol." "Well," I said, "use this." And the other major members of the design team said, "We agree." We then modified the basic language into the thing that is now know as Interpress. Interpress looks very much like PostScript at some level. I thought Interpress was made too complex in that process. So when we left Xerox, we actually started with the original form which we name PostScript.

But at Xerox, we hadn't solved the font problems, the font scaling problems. And so, that was one of our first year's agenda—to figure how to scale fonts; and we made some breakthroughs. Got our act together, and it worked.

**Did Adobe design typefaces for the first LaserWriter?**

Adobe has done all of the typefaces for all of the LaserWriters. It was very important to us to license the original typeface names from Linotype and from ITC. "Times" has a lot of historical value! And especially when you get to things like "Optima," and some of the faces like "Univers" which are heavily trademarked. You don't want to have second-best kinds of names.

**Did you have graphic artists working with you at an early stage?**

Oh, absolutely! Day one. And we got into the typeface business very early, very strong. So it sort of evolved from the first customers, Apple and Linotype to, now we're at about 29 or 30 OEMs. And there are 35 printers currently shipping and at the end of this year we will have completed development on 70 machines.

**How many of those are color printers at this point?**

Well, one is announced and there are a couple more in the works.

**What kind of price points will we see?**

They'll be coming down.

**Good!** (laughter)

**It's pretty well known that Adobe typefaces look better at small and large point sizes because of the "hints" that are built into them. Has anyone raised a fuss because you have the hints and they don't?**

No, everybody's developed their own set of hints. Bitstream has its own technology where it tries to build good looking stuff. URW has its own technology; Folio, which was just purchased by Sun, has its own technology. So, it's sort of funny. Once someone finds a path over the mountain, other people know the path is there. Whereas, before we had brought out the first set of products, it was commonly believed that it was an impossible task—that you could not make good looking typefaces at small point sizes.

**How does the PostScript that we know and love from the fonts relate to Display PostScript, which is the big gleam in everybody's eyes these days?**

Well, it has exactly the same imaging functionality—there's no difference in the imaging model. Where it has been extended is—interactive applications have to have the requirement of replacing stuff on the screen very quickly, of changing contexts very quickly, of going from here to here to here under different circumstances very, very quickly. Managing memory, so I can allocate memory and have a garbage collector come by clean up after me. And it's those kinds of things that have been added to Display PostScript. So, fundamentally anything that can run on a printer will run on a Display PostScript system. And anything that's not interactive will run on a printer. So it's sort of the delineation of the real-time aspects of driving the display—that's really where the changes have been made.

**Why would somebody want to go to the trouble of specifying Display PostScript for their equipment? What needs does it address?**

Well, the look of the screen is entirely different. When you do a big font, it just sort of grows and looks beautiful. As it gets larger, each individual character is very pretty. It's like you have a photo-

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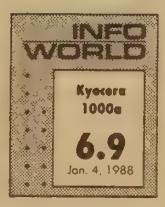


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graph, and as you zoom in and as line weights get thicker you'll see the lines get thicker and the mitred corners get perfect and everything is just really clean. It also gives you extreme device independence, in the sense that I can hook up a color monitor, a black and white monitor, a grey-scale monitor, and my application just works.

There isn't a lot of code dodging that the application programmer has to do to figure out how to get it to work over here, and then how to get it to work over there. He sort of figures out how to get it to work on an abstract thing, that may not be any display, and then it ports to anything. And so if I want to collapse a whole window down into a portion of the screen in one application, run another application, I can have two virtual screens, and they don't even know this stuff is happening. So the abstraction level is such that you have extreme flexibility within the operating system.

**What kind of industries do you think will make the best use of this?**

Well, I think over time it will become very widespread as machines get more memory, more processing power. Obviously, publishing is one area, CAD/CAM is another area where we have a great deal of strength; anything that has a lot of visual aspects to it. Information retrieval and dissemination, like if I want to have all the articles in a magazine available and I want to see them the way the *Wall Street Journal* printed it, then Display PostScript allows you to do that.

**Is this likely to become a standard for on-line information services? For example, Prodigy uses NAPLPS. But NAPLPS is stone age compared to Display PostScript.**

Yes, we talk to companies like Dow Jones.

**Why hasn't Apple endorsed Display PostScript?**

Well, Apple feels a requirement to own their technology and control their technology. They feel that their proprietary interests and interfaces are really important to their success. And if they had Display PostScript it would not be proprietary.

**We had a problem not too long ago trying to open some PC EPS files on a Macintosh. It didn't work, which was a big disappointment; apparently there are several incompatible EPS standards running around the PC world.**

It all should work. (laughs) I think it's coming together. Whether the applications read the most general forms is not clear. There are variations on the theme.

When Display PostScript comes around, all the little bitmaps that are captured will go away and you'll just take the file and execute it in a subwindow and it will re-render itself at the right resolution, and you don't get this funny squishing into a black hole kind of thing that you get now. So I think life will get better; it's never perfect, though.

**I've heard that Display PostScript is a lot faster than printer PostScript, what's that due to?**

Well, you're dealing with a lot less bits, for one thing. And we've optimized pieces of the code to do certain operations that are used in interactive manipulations very quickly. So we've optimized a lot of code. And yes, it will get folded back in.

**Will we be seeing PostScript on a RISC chip anytime in the future?**

Actually, we ported Display PostScript to the (IBM) PC-RT, which is RISC, and we've also ported it to the SPARC chip, which is on the Sun 4. Whether you'll see printer PostScript on a RISC chip—sure. We run a number of different RISC chip developments in house, and as those become economically viable and customers want to use those controller designs, we'll use them.

**Where do Illustrator and its new incarnation Illustrator '88 fit into all this?**

Well, I think they're sort of demonstrations by Adobe of what you can do with PostScript machines—plus being damn good illustration programs. So the goal was to have an application that uses the technology and shows what it can do. Also my wife was a graphic artist and she needed a problem solved, so we solved it. (laughs)

**Well, the best products are user driven.**

Yes, well this one certainly was; I used to have to ink.

**You're out competing with at least a couple of companies that you support on the PostScript end, you're competing with Aldus and Micrografx. Is that a problem?**

We try not to let it be. We try to sort of have it like Microsoft. Microsoft does the same thing—they have MS-DOS and the applications side. And we try and keep those sets of decisions very, very separated from each other. I mean, we're the friendliest guys in the world to Aldus.

**Sun has some kind of Display PostScript system interpreter in their NeWS system. Does that make them a competitor in any sense?**

They've implemented their own interpreter, I guess. I would rather have that kind of competitor than this Presentation Manager stuff. At least they're spiritually for the same purposes.

**You're also in the position now of having all these people more or less rattling the sabres of their PostScript clones at you. What are PostScript clones? Are they clones? And what are the tradeoffs facing Joe Officemanager who's sitting there contemplating what to go for?**

There are a lot. The thing is that I think PostScript machines now probably represent 30% of the laser printer market. That's a lot of machines and there are a lot of people who look at Adobe's financial reports and say, "Gee, it looks like there's a lot of money to be made in this business. Why don't we go out and replicate what they've done?" And so, at last count there were 70 clone activities going on, and they're at various stages of development. Some of them, in fact, are shipping product—finally. They've been threatening for 2 1/2 years now.

There are all kinds of issues that the user has to be aware of. If he wants compatibility, he has to evaluate that very carefully. Is it a robust product? Is it a reliable product? Does it hold up under *PageMaker* with use? Can I hook it to my Macintosh and just use it as a PostScript machine and not run into problems with my Linotype?

The biggest issue is probably the fonts. We have about 300 faces, and those faces won't work on those [clone] machines. So if I have a library of fonts that I use, I have to go rebuy that library to run on that clone machine. If I'm networking and sending fonts around networks, that may be impractical. So that's one of the biggest obstacles.

Other things... does it produce the quality of fonts at low resolutions that ours do? If you really sit down and go over the fonts with a fine-toothed comb, are they producing the right stuff? All of our machines, all of these 70 machines, are built from one set of source codes. So they're consistent, and consistent to a very high level. Also our implementations of the communications protocols are very robust, whereas one of the problems everyone's been having is printing through Appletalk. So, those are the issues.

Adobe's John Warnock: "Programs are very sophisticated now. Programs that you can buy for 500 bucks now used to cost $150,000. When *Illustrator* was first announced, the competition in that category was $50,000 and $100,000 programs. But I'd rather sell it for $500."

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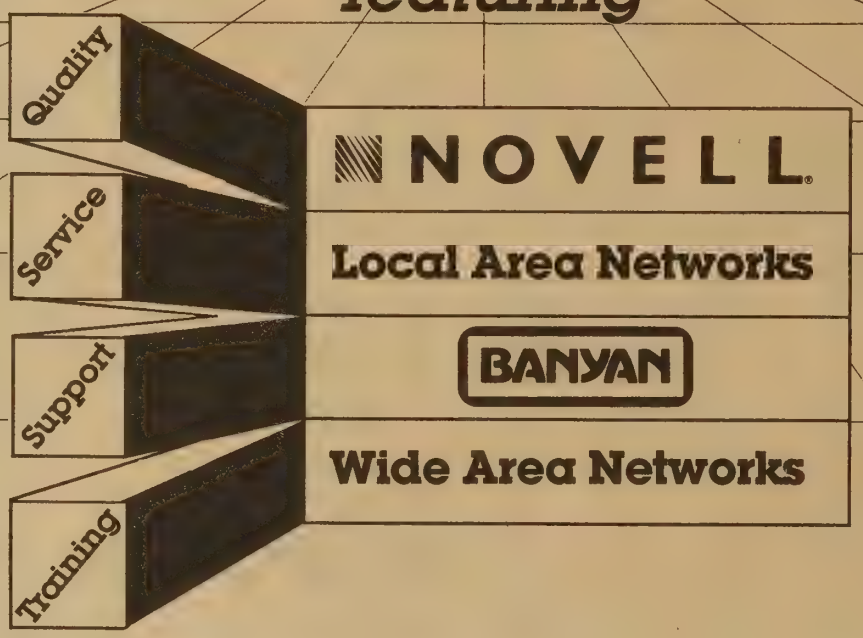


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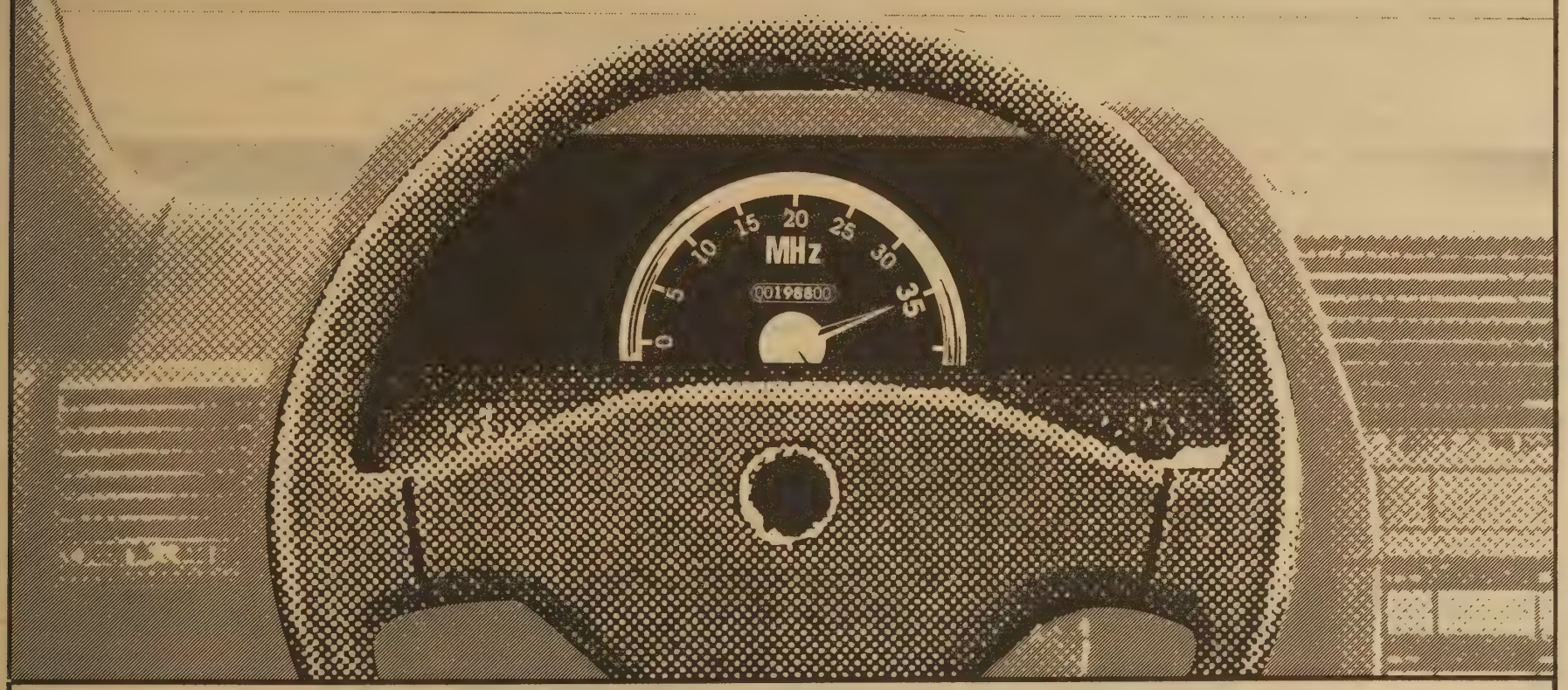


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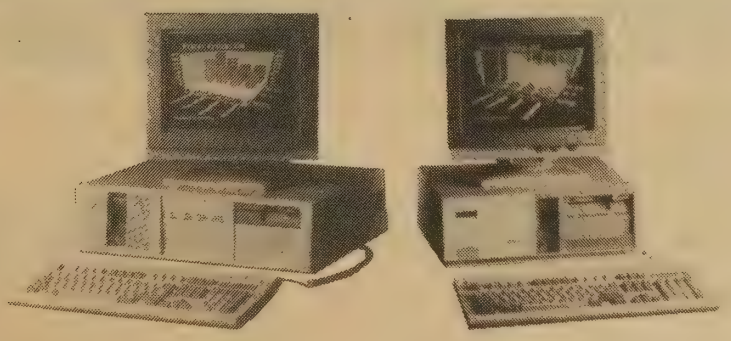

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| Step 286/12 | 2.45 MIPS |
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**In the IBM world, the ROM BIOS was duplicated almost instantaneously by a number of companies. And it's gotten to the point where a clone BIOS is very compatible. But it's taken 2 - 3 years for these people to duplicate what you did with about half a dozen people in a year and a half. What makes PostScript so hard to clone?**

It looks deceptively simple. I mean, most programmers open up the red book and they say, "This is easy. I can do this." And so they'll start, and as a matter of fact they get 90% there very, very quickly. Get the language so it can add and subtract and multiply and do all of the things that the language does. And then they get to *SHOW*, and that starts to get a little tougher, and they get to *FINDFONT*, and then they start dealing with the screens and *SETSCREEN* and some of the harder operators, and they say, "Whoa, wait a minute. This is not so easy." And then they'll get their implementation to work, but it will be disastrously slow. OK, then they'll say, "Well, throw hardware at it."

Some think communications will be easy, so they take AppleTalk for granted.

**How big a problem to Adobe's general future plans is the current memory problem? Because PostScript would like lots of memory. It would be very happy if it had a gigabyte to play around with.**

Oh, it sure would. You have to make the assumption over the long term that memory prices will go down. In the short term they're not. Apple raised their prices. So, the memory availability is hurting our smaller customers, because they just can't get RAMs.

**People's complaints about PostScript are that it's slow and it costs a lot. You can get a LaserJet for about $1,600. I'm under the impression that Adobe's licensing fees aren't anywhere close to representing the difference in cost between a PostScript printer and a LaserJet.**

No, the cost comes from two things. One is that if you have 35 faces, the typeface royalty fees are non-trivial—that's a lot of typefaces. PostScript royalty, with volume, goes down, so that in large volumes it's somewhere sub $100.

There has to be a fair amount of memory on board; the board has to have a fairly good processor on it. And the board cost is a component of the difference, the typeface royalties are a component, the PostScript royalties are a component. And the fact is that the margins are there—it's not a terribly price sensitive market. Apple sells all the LaserWriters it can make.

What is brilliant about HP's strategy, and this is a stroke of genius, is that they made the minimal machine—really the minimal sort of silent daisy wheel. Does Courier 10, and that's about it. So you can buy that for $1600; a customer can get comfort knowing that they own a cheap laser printer.

If you start then to do any of the desktop publishing, start buying fonts and the extra RAM you need to download the fonts and all of that stuff, you're very quickly up to $4000. Because what happens is the dealers very deeply discount your basic LaserJet but charge full list on all of the upgrade features. And they're getting their margins out of the upgrades. They're not getting their margins out of the basic machines.

And that's brilliant, because a guy goes in and he says, "I want to buy a LaserWriter." They say, "Buy a LaserJet, $1600. Oh, but if you want to print anything, you have to add all this stuff to it." It gets very quickly up to $4000. Everybody intellectually understands this. But they still behave as if LaserJets are cheap or something. They're really not.

**It seems as though the LaserJet is pretty well entrenched in the IBM world and a lot of people don't really understand what PostScript is. What will you do to educate them?**

Well, *PC Illustrator* is one thing. Actually, the next version of *Lotus* has a really good PostScript driver in it. I'm hoping the next release of *1-2-3* will help.

**Whenever it comes out.**

The only thing we can do is slug away as is for a while. Large corporations now understand the benefits of PostScript—like Boeing doesn't buy LaserJets.

**Are there particular challenges moving PostScript from a Macintosh environment to a PC environment?**

Moving *Illustrator* from a Mac to a PC was an enormous challenge. The 640K limit was horrible. The fact that *Windows* takes up a lot of space—you're trying to get an elephant in a shoebox.

**And make it dance at the same time.**

Right. And that was a very, very difficult task. I'm really pleased with the performace of the PC ver-

*continued on page 134*


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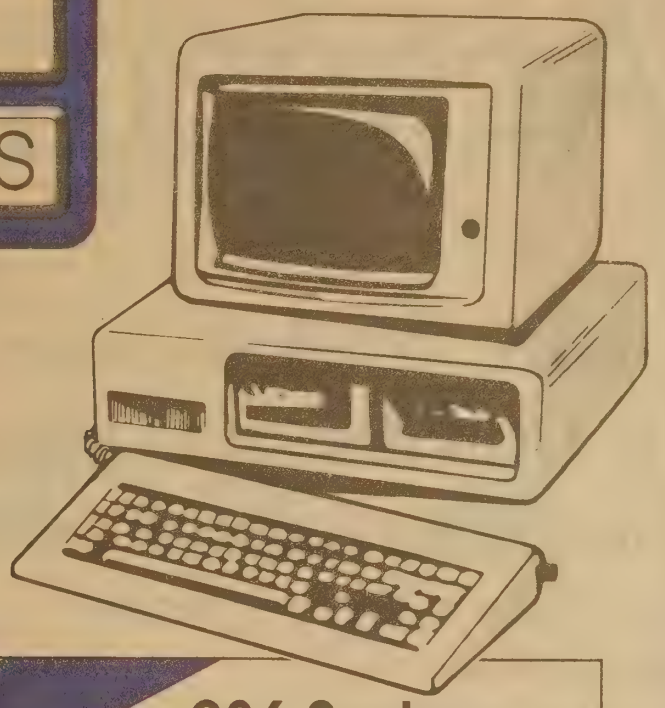

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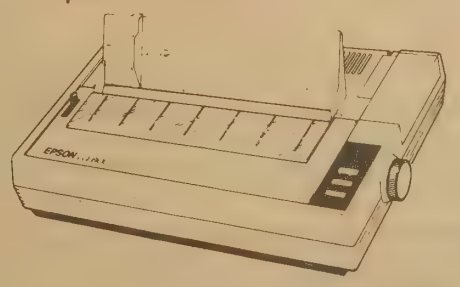

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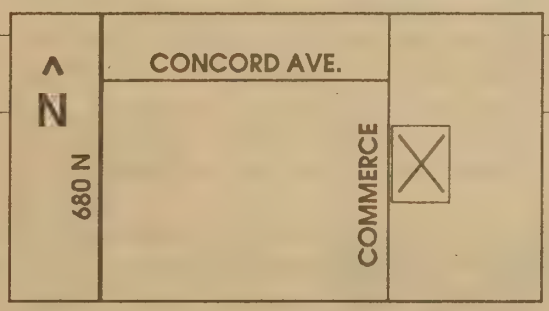


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# AcademicComputing

## UNIX Workstations In University Computing

### *Standards, Graphical Interface Crucial To Future Development*

**By Helmut Kobler**

The personal computer world got a dose of some impressive technology from late 1986 into early 1987. In November, 1986, Compaq introduced its Deskpro 386. Apple followed in March, 1987, with the Macintosh II, and IBM showed its PS/2 Model 80 a month later. In terms of the standards personal computer users were used to, these machines—and similar models that followed them—were unquestionably spectacular. But they weren't revolutionary. Actually, the new desktop power they boasted already existed in powerful micros known as advanced function workstations.

Few PC users had even heard of workstations; they couldn't run MS-DOS software and didn't have strong word processors, spreadsheets and databases to make them competitive in the office. Workstations still lack strong business applications, but in the academic world, they're a sort of life-support system for hard science departments such as electrical engineering and computer science. At the University of California at Berkeley, for instance, scientists and engineers have used workstations since the early '80s; more machines are put to work in these and other departments each year.

What makes workstations attractive to universities like Berkeley is their high power and relatively low cost. Not all science department work requires the processing power of a mainframe or minicomputer—and undoubtedly, not many universities can easily raise the many thousands of dollars to purchase and maintain the mammoths. On the other hand, workstations from Apollo, DEC, Sun Microsystems and other companies range from around $5000 to $100,000, depending on the model and its configuration. But the most popular setups—Apollo's DN3000, DEC's Vaxstation 2000 and Sun's 3/50 and 3/60—cost around $10,000 to $15,000. That's low compared to

*continued on page 64*

**Workstations still lack strong business applications, but in the academic world, they're a sort of life-support system for hard science departments.**

## HyperCard In The Academic World: Promise Vs. Reality

**By Roger Karraker**

All right, class, it's quiz time. One question only. Multiple choice:

"Apple Computer's new indefinable *HyperCard* program for the Macintosh—part database, part game, part programming language, part interactive slideshow—is:

**A.** The greatest advance in classroom teaching technology since the introduction of the blackboard;

**B.** The latest, most-touted technological fiasco since BASIC;

**C.** A promising educational tool that may change how we teach and learn;

**D.** The latest example of Apple's nirvana-in-a-cute-box syndrome.

Experienced test-takers—and aren't we all—will recognize this as the loaded question it is, complete with subjective "answers" and the "correct" answer (**E.** It's too early to tell) nowhere in sight.

If this exam were in *HyperCard* format, instead of in this hopelessly retrograde, 15th-century Gutenbergish type-printed-on-paper medium, we'd simple move our Macintosh mouse over one of the options, click, and zoom off into a non-linear, interactive web of associated ideas.

A mouse click on answer A, for example, might instantly show us a timeline of how classroom education evolved from the Greeks, or a catalog of teaching aids or a video sequence on how blackboards are made. The blackboard sequence, in turn, would be, in *HyperCard* lingo, "linked" to other "associated" topics, like chalk, the White Cliffs of Dover, and hence to geology, seashell skeletons, calcium carbonate, evolution and other topics very far afield, indeed, from classroom technology, all inter-connected through the vast associative powers of the mind and helped along by *HyperCard*.

Had we clicked on answer B, we might have been off on a whimsical retrospective of failed "teaching machines," or an excursion into the BASIC programming language, perhaps with a side trip to explain that "fiasco" comes from the Italian word "fiaschi," the woven straw coverings on bottles of cheap Chianti wine, which might have led to...Well, you get the idea.

In the end, we may not have gotten any closer to the answer to our question, but there would have been a lot

*continued on page 66*

**HyperCard, it was said, would usher in a new millennium of educational technology, one where the author-teacher and the user-student could jointly create a myriad of associative paths.**

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## UNIX Workstations

*continued from page 62*

what universities would have to pay for minis and mainframes, and yet the workstations can handle much of the work faculty and students need to do. They sport fast, 32-bit CPUs, usually four megabytes of RAM, monochrome, grey-scale and color displays of more than a million pixels, large hard disks starting at 40-70 megabytes, and have excellent networking abilities. Most commonly using Ethernet connections, universities link various workgroups, departments and even the entire campus into a network for sharing files, printers, connecting to campus mini and mainframe computers and passing along electronic mail.

### UNIX And Campus Computing

In charge of all the fancy hardware is the multitasking, multiuser UNIX operating system. To MS-DOS and Mac types, UNIX may seem like some arcane system used on big, ominous computers years ago, replaced later by more modern systems. In fact, UNIX is older than any of the popular operating systems running PCs today; it was developed by AT&T in the early 1970s and was used on large computers in the labs of universities and other scientific facilities. Instead of retiring, though, UNIX was ported from one type of machine to another until it became a standard on everything but the PC.

Universities, then, are familiar with UNIX, and since the UNIX commercial software market is small and priced high, they've traditionally developed their own software. And, since they typically use a variety of different machines for different applications, it's very important that they keep software compatibility from machine to machine. Once code is written on one UNIX machine, it can still be run on an entirely different machine—as long as it's running UNIX as well. "Portability is key," says Jerry Smith, Director of Workstation Support at Berkeley. "We don't want to be fiddling around with incompatible environments where an important programming project, which may have taken hundreds of man-hours to complete, is suddenly useless because new department machines are incompatible with older ones. Working under UNIX protects us from that kind of mess."

Despite being a "standard," UNIX exists in different, sometimes incompatible versions. For instance, code written under AT&T's System V UNIX may not work on a machine running Berkeley UNIX, or on a proprietary operating system loosely based on UNIX. Fortunately, in most cases only minor changes are needed to port software from one UNIX to another—much less of a headache than porting applications from MS-DOS machines to a Macs, for example.

It was by outfitting its machines with Berkeley UNIX, the most popular version among universities, that Sun Microsystems became the number-one workstation supplier at UC Berkeley, as well as at other schools around the country. Sun entered the workstation scene in the middle of 1982, more than a year after Apollo Computer had created the market with the Apollo DN machines. But the Apollos ran a proprietary operating system, making students and faculty waste time and resources to learn its OS before they could write anything for it. The Suns with Berkeley UNIX, familiar and running on other university computers, naturally won out, and Sun now has the largest share of the workstation market, much of which lies in universities. At Cal, for instance, Suns outnumber Apollo, DEC and other workstations by about 3 to 1.

### Beyond The Science Departments

But whichever the choice machine is, academic workstations are put to work on a myriad of different projects. A look at almost any computer science or electrical engineering department's research summary—usually hundreds of pages long—shows that workstations such as Sun's are being used in some way or another for designing integrated circuits, operating systems and databases, creating artificial intelligence and robotics systems. They're used for geometric modeling, computer-aided-design and studying the nature of various plagues and epidemics.

That's just a sampling, but while workstations are flourishing in hard-science departments, the humanities seem to be starved for them. With the commercial market for UNIX software being so limited, most university departments have to develop custom software for their specific projects. That's not a big problem for computer science and other technical departments; if faculty members don't write their own source code, they can easily recruit graduate or undergraduate students to write code in exchange for class credit.

Unfortunately, skilled programmers are not exactly common in English, History and other humanities departments, so the few workstations in those areas often go untapped, used for electronic mail functions and perhaps to publish class materials for students. Undemanding work like that seems better suited for a Mac or PC, rather than a workstation costing several thousand dollars.

Faculty in the humanities are working to change their situation, but the progress is slow. Charles Faulbauber, a professor specializing in medieval Spanish texts at Cal, for instance, is waiting for a university grant so he can hire a team of programmers to build a database of medieval texts which students can access from workstations—or even PC clones—on a network. The system would be based on Suns, though, which could handle a multi-user database nicely. Later, Faulbauber wants to add a hypertext project being developed for UNIX at Carnegie-Mellon and Brown University. With a hypertext front-end on his database, Faulbauber's students will be able to select unfamiliar words and references from their texts and open online dictionaries or encyclopedias for more information.

An intuitive front-end interface like that is what Faulbauber feels his Suns—and other university computers used outside of scientific labs—need in order to become true scholar's workstations: "I've spent too many hours just trying to figure out the UNIX file structure, let alone the UNIX applications I'm using in my work. Using the computer should be as easy as possible so we don't get all tangled up in the intracacies of the machine instead of spending our time and energy on studies and research."

A graphical interface like the Macintosh's would make workstations much more accessible to users not concerned with the technical side of the machines. Suns have a windowing enviroment called Sun Tools which runs UNIX applications in windows, and MIT's X-Windows system is popular on Suns, DEC and Apollos as well. But neither interface uses the icons, buttons or menus that make working with a Mac so easy. Some UNIX applications do offer friendly interfaces, but they lack the Mac's consistency, which allows the user to find the "save" command under the "file" menu, no matter what software is running.

**"Portability is key," says Jerry Smith, Director of Workstation Support at Berkeley. "We don't want to be fiddling around with incompatible environments where an important programming project, which may have taken hundreds of man-hours to complete, is suddenly useless because new department machines are incompatible with older ones."**

### Standards Wars

There's hope, though. Late last year, Sun and AT&T agreed to co-develop a new version of UNIX called System V 4.0. They want this to become the definitive UNIX operating system, replacing the various incompatible versions with a true standard that would run from super computers to PCs without a hitch, no matter who made them. And to complement the new operating system, Sun and AT&T announced Open Look, a graphical interface that would hide the intricacies of UNIX beneath windows, menus, dialog boxes and buttons. Developers writing for System V 4.0 would have a consistent inter-

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face to build their software around, and faculty and students would have a much easier time of using the programs.

Sun and AT&T's plan could backfire, though, making things worse for the academics, as well as anyone else trying to keep their various systems as open and compatible as possible. It's suspected by rival vendors that the new UNIX is being designed to give a performance edge to Sun and AT&T workstation hardware, especially the new machines based on Sun's new RISC (Reduced Instruction Set Computer) chip. Sun and AT&T deny playing any tricks with System V 4.0, but their competitors aren't believing them, and refuse to support an industry standard of UNIX that they believe plays favorites.

To counter the Sun/AT&T standard, IBM, DEC, Apollo, Hewlett-Packard and other companies have announced their own standard OS, forming an industry group called Open System Foundation to develop it. Workstations running under perhaps radically different operating systems would be a nightmare for universities whose highest priority is keeping their various machines compatible and speaking with each other.

Even if two hostile camps aren't formed, the workstation market is still in for some turbulence. Schools have to consider not only the familiar Apollo, DEC and Sun systems now, but a jumble of newcomers too. 80386 machines like Compaq's Deskpro 386 or IBM's PS/2 model 70 can run versions of UNIX; Mac IIs run A/UX, Apple's own version of UNIX. Then there's the upcoming "scholars' workstation" from Steve Jobs' NeXT, based on a UNIX-similar operating system called Mach. Naturally, academics are excited with all their new options. More companies competing will bring a better selection of systems and software, as well as cheaper prices.

There's a flip side to this, though, and it's keeping the schools wary. Newcomers like the Mac II or NeXT machine could rock the boat while trying to get ahead. To improve their performance, they might challenge the university's cherished, tried and true standards and develop an impressive—but nonetheless closed and proprietary—alternative. That's just what universities are afraid of.

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# HyperCard In The Academic World

*continued from page 62*

of learning going on and, most importantly, we would have transcended the one deep failing in modern education: the Balkanization of knowledge, the myth that academic subjects are discrete, to be studied in isolation.

## The Promise

In 1945, President Roosevelt's science adviser, Dr. Vannevar Bush, foresaw a time when machines would help learners create "a seamless web of knowledge," where researchers could pursue "associations" between facts and ideas.

*HyperCard* encourages this "natural" way of associative thinking, using the common metaphor of a file card. "Cards" are the fixed 4-inch by 7-inch size of the standard MacPlus or Mac SE monitor, and the resulting files of "cards" are known as "stacks," as in stacks of cards.

Cards can contain text, bit-mapped graphics, sounds, digitized photos, simple animations and, most importantly, the "buttons" that "link" one card with others. Of equal importance, *HyperCard* contained a semi-object-oriented programming language, HyperTalk, and *HyperCard* buttons contain small near-English programs ("scripts" in Hyper argot), that could control all matter of external machinery, like videotapes and random-search videodisks and new CD-ROM players.

*HyperCard*, it was said, would usher in a new millennium of educational technology, one where the author-teacher and the user-student could jointly create a myriad of associative paths through gigabytes of data in text, images and sounds.

Educators were among the first to see *HyperCard*; Apple funded many university demonstration projects months before *HyperCard*'s August 11, 1987 rollout in Boston. And by the time of the annual EDUCOM conference the folowing October in Los Angeles, Apple was ready to blitz academia.

At the three-day conference, with 2,000 academic computing professors and administrators in residence from the country's top 500 research universities, *HyperCard* was everywhere.

First it stole the show at an IBM-funded pre-conference workshop on laserdisks. The Voyager Corporation's Bob Stein demonstrated *HyperCard* searching the National Gallery of Art videodisk for all paintings by Renoir, all Impressionist paintings, finally searching for all paintings whose dominant color was blue. Instead of being limited to a single path through the data, users could create their own, typing in their own search terms, making their own associations. Beside *HyperCard*, IBM's expensive and rigid touch-screen InfoWindows technology paled in comparison. Videodisk authors quickly grasped that *HyperCard* allowed entirely new approaches to be tried for the cost of a floppy disk, rather than the thousands required to re-master a videodisk.

The next day, Apple Chairman John Sculley delivered the keynote address, including his since-famous "Knowledge Navigator" video, and showed a snippet of a beautiful *HyperCard* anthropology simulation, *Shogai*, by Stanford professor Dr. Harumi Befu.

The simulation, accompanied by evocative digitized graphics, traditional calligraphy and Japanese music, all done within *HyperCard*, had students making fateful career decisions for members of a Japanese family—and living with the consequences of those decisions.

*HyperCard*, Sculley said, was the perfect software to help harness both learning simulations and the vast storage capacities of CD-ROM.

Later that day, Apple gave away copies of *HyperCard* to every educator; Bill Atkinson, the programming genius who developed both *MacPaint* and *HyperCard*, demonstrated it and answered questions. He was followed by teams of Apple trainers conducting two-hour classes in *HyperCard* basics. Outside the training areas, at an eclectic "Software Faire," the Project Jefferson program—a *HyperCard* curriculum for freshman writing classes from the host college, University of Southern California—was drawing crowds of admirers.

Articles on *HyperCard* followed in Academic Computing Magazine and the EDUCOM Bulletin, and in virtually every other publication devoted to computers in education. It's safe to say that *HyperCard* has had one of the most ballyhooed introductions of any software product.

Stackware authors went to it with a vengeance, burying user groups with disk after disk of graphics- and sound-laden interactive stacks. I lost count when BMUG's catalog of *HyperCard* stacks totaled more than 46 disks, and Raines Cohen of Team BMUG told me that about 30 new disks of stacks will be added (about 80 disks of *HyperCard* material in toto) on BMUG's $99 CD-ROM disk.

**Eight months after its introduction, it was said that more applications had been written in HyperCard than in any computing language in history.**

The vast majority of these early *HyperCard* applications were probably educational in nature. Many were outright classroom exercises and drills; others were education-related data-packed stacks like the highly-acclaimed "AIDS Stack." "Classroom management" projects, like grading modules and seating charts, proliferated like banana slugs in a wet winter.

Eight months after its introduction, it was said that more applications had been written in *HyperCard* than in any computing language in history.

The final grade on *HyperCard* as a teaching tool is years away, but it *has* been one year since it was introduced, and it's appropriate that we review how this much-hyped program, with its obvious educational applications, has fared in educational settings.

## The Current Reality

Not surprisingly, there are many unanswered questions: *HyperCard* is simply too new, too untested for educators to make sweeping conclusions. But after surveying several Bay Area colleges and educators, a few points seem crystal clear:

**1.** Educators are intensely interested in *HyperCard*. Santa Rosa Jun-

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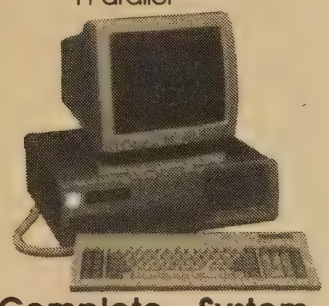

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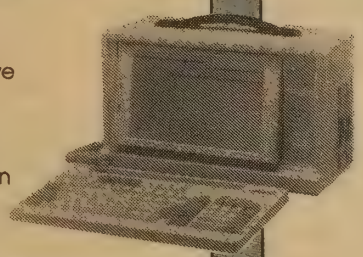

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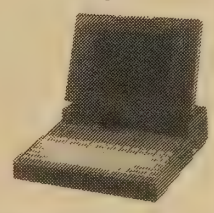

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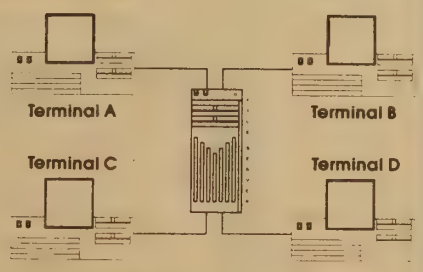


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# HyperCard In The Academic World

*continued from page 00*

ior College offered a last-minute introductory *HyperCard* course this spring, long after the course schedule had gone to press. The course was advertised solely through word of mouth and filled its 24 seats in just five days. About half the enrollees were college teachers or staff. A summer course, also added late and wedged into an unpopular Friday time slot, filled within a week.

University of California Extension also offered a *HyperCard* class this summer, one aimed specifically at teachers. But enrollment was twice what was expected, and a second section was added to accommodate the 44 students.

**2.** *HyperCard* appeals to "educators" of all ages.

Mills College in Oakland was one of those colleges seeded by Apple with early copies of *HyperCard*. There graduate students in interdisciplinary computer science put together a number of projects using *HyperCard* to interactively control laser videodisk players.

At the other end of the spectrum, the Technology Center of Santa Clara County taught *HyperCard* to fifth grade students, then had them create learning programs in *HyperCard* for first grade students. The project ended with the gangly fifth graders awkwardly stuffed into first-grade size chairs, with one or more first graders perched on a knee, navigating *HyperCard* stacks with their students.

**3.** *HyperCard*'s highly-touted ease of use can create chaos in class: students ignore prerequisites that they be familiar with the Macintosh. Instructors at both Santa Rosa Junior College and UC Berkeley Extension reported getting students in beginning classes who, in the word of UC Berkeley Extension instructor Roger Knight, "had never seen a mouse or a Macintosh before."

The result, Knight and other teachers reported, was an awkward dance for instructors, trying to teach brief Macintosh basics to the uninitiated, while hurrying to give others what they enrolled for: *HyperCard* and HyperTalk.

Knight reported that in nine hours of hands-on he was able to thoroughly cover "browsing" (*HyperCard*'s term for read-only access) and hit the rudiments of "painting" (with the built-in bit-mapped graphics program) and simple scripting.

Santa Rosa Junior College has also had students unfamiliar with the Macintosh in both its *HyperCard* sections, and Richard Abrahams, the director of the college's Tutorial Center and head of its Macintosh labs, plans to tighten prerequisites for the college's two sections of *HyperCard* offered this fall.

**4.** *HyperCard* is in danger of being over-hyped. Unquestionably, *HyperCard* has brought programming to the masses, in a way that BASIC failed to do. It is possible for a complete non-programmer (one who is familiar with Mac use, however) to sit down and in a few hours create a simple stack with information, "links," movie-like visual effects like dissolves and wipes, perhaps even incorporate some simple clip art graphics.

Those first stacks usually aren't pretty, or great teaching tools. But, as Dr. Johnson said in another context, it reminds one of a talking dog: it's not that it's done well, but that it's done at all.

The reality, though, is that producing professional-looking *HyperCard* stacks requires a number of skills that are rarely found in a single person. Creative stackware requires attractive screen design, knowledge of interactive education design principles, sound studio techniques to include music and sound effects, first-class programming skills and, of course, thorough knowledge of the material to be taught.

That's a big bill, rarely found in a single individual. More commonly, superior stacks require a small production team, where subject specialists are paired with programmers, designers and sound engineers.

So, while hundreds, perhaps thousands, of teachers have already created effective *HyperCard* courseware, the projects that have attracted the most interest have been created by production teams, often Apple-funded, at research universities.

And, despite the hype, *HyperCard* doesn't necessarily make obsolete the many authoring systems on the market. Indeed, Roger Knight sees one of *HyperCard*'s great benefits in the fact that it allows teachers to endlessly prototype a learning exercise, to get it in rough format, so that it can then be turned over to contract programmers for final work. He says three Bay Area companies—HyperPro in Oakland, Hypermedia in the South Bay and his own firm, Michael Connor & Associates in Cupertino—do contract *HyperCard* programming, often on educational projects.

**5.** Good *HyperCard* stacks are neither fast nor cheap to produce. When Kevin Kelly and his crew at *The Whole Earth Catalog* were 5,000 cards deep into their project of converting the catalog into a CD-ROM, they estimated that each card represented one hour of team work. One of my first simple stacks worked out to two cards per hour, but my latest project, which involved more programming and endless tinkering, came out right on Kelly's rule-of-thumb estimate: one card per hour.

It can take weeks and months of effort to produce effective stackware. And who pays the cost? Traditionally, it has been the large research universities who have supported ambitious learning projects, often with commercial or foundation backing, and *HyperCard* is no exception. The most impressive stacks—say the Harvard/Bowdoin *Persues Project*, which plans to put 10,000 ancient Greek texts on CD-ROM—are the products of large teams at large universities.

Stanford's *Shakespeare Project*, which has a *HyperCard* stack that includes the text of *Hamlet*, instructor's notes, critical commentary and a Shakespeare dictionary, all linked to a custom videodisk with scenes from different productions of the play, reportedly cost more than $160,000 to produce. Don't count on your local elementary school or community college funding anything similar.

Production teams of this size exist only at major universities, fueled by a seemingly-endless supply of graduate students, or at commercial publishers, such as the *Grolier Encyclopedia* people, who are busy converting their *Academic American Encyclopedia* into a *HyperCard*-based CD-ROM.

Eventually, some of this material will trickle down to students at less wealthy schools and colleges. Kinko's, the chain of copy centers that already distributed other inexpensive educational software through its Apple Courseware Exchange, has announced it will also carry educational stackware.

But Kinko's requires that courseware be used by the institution for at least a semester before Kinko's will carry it. For University of Southern California, for example, that means that *Project Jefferson*, with its four megabytes of texts and exercises concerning constitutional issues, won't be available until next spring, at the earliest, even though USC students started using an early version last fall.

**It can take weeks and months of effort to produce effective stackware. And who pays the cost?**

*Project Jefferson* has already spawned other *HyperCard* projects at USC. According to the project's director, Tyde Richards, economic anthropologists have created a simulation that plans and tracks water use in Bali which may result in higher rice yields and water savings. And other *HyperCard* projects are on the drawing board. What began as a part-time effort last year with Richards as the sole paid worker has mushroomed into a full *HyperCard* production staff.

Despite *HyperCard*'s acknowledged limitations, educators are wildly enthusiastic about it. Indeed, when *HyperCard* was first introduced, many people asked "what's it for?" Even the *New York Times* had difficulty grasping its potential. But not so among educators. As Roger Knight put it, "educators immediately grasp its significance, its ability for interactive learning through simulation."

It will take a while for *HyperCard* mania to percolate down to all levels of education. Right now, too few schools, especially in elementary and secondary schools, have access to Macintoshes, either for faculty or students. And too few instructors own the pricey Macintosh. But when the Sonoma County Office of Education negotiated a special purchase of Macintoshes for instructors, more than 300 instructors quickly signed up. And the program they mentioned most often was *HyperCard*.

Count on it: *HyperCard*'s coming soon to a school near you.

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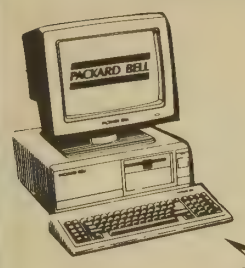

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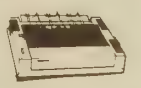

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# New Learning Tools In A Changing World

*Keynote address by Apple president/CEO John Sculley at EDUCOM, October 27, 1987.*

We are privileged to live during an extraordinary time. It is the turning of an era. The world is in passage from the industrial age to the information age.

This is a time of profound changes, in which the key economic resources in the world will no longer be capital, labor and raw materials, but rather knowledge, individual innovators and information.

Technologies which are emerging today will give users the ability to explore, convey, and create knowledge as never before. This has enormous implications for us and individuals, as well as for our institutions. Our colleges and universities will take on especially heavy responsibilities as we make this transition. We have an opportunity that is given only to few generations in history. I believe that if we respond with our best creative energies, we can unleash a new Renaissance of discovery and learning.

In our global economy, we are moving from a hierarchical order to one of interdependence. Not long ago the United States stood unchallenged at the top of the world's economic hierarchy.

Drawing on the consuming power of an affluent population, this country built a strong industrial base. Our manufacturing companies added value to natural resources through technological know-how. Economies of scale favored the development of large, highly structured institutions.

Today, however, we are not at the top of a pyramid, but rather one node along a network. Our once exclusive know-how is available in many newly industrialized nations, such as Korea, Taiwan, Singapore, Mexico and Brazil.

What is at risk, as the United States loses economic primacy, is not simply our own standard of living, but also the health of the world economy. The global economy functions like a biological ecosystem. An unbalance in one sector can affect the whole.

The United States participates in the world economy, not simply as a producer but also as a marketplace. If our population loses the ability to afford our own products, it also will not afford Japanese automobiles, electronics from the Pacific Rim countries, and so forth. And that would have a tremendous impact on the macroeconomic ecosystem of the world.

Yet it is clear that, as a nation, we are living beyond our means. We are no longer creating enough value to sustain our lifestyle, and we are falling deeper into debt. There is a compelling need to find new ways to continue to create value in the world.

I believe that in order to do that, our businesses and universities must be designed to foster innovation. Yet innovation has never come through bureaucracy and hierarchy. It has always come from individuals.

There is a dangerous timelag built into even the most successful institutions. They are created at one time in response to some particular opportunity in a given historical context. And then as the context shifts, the institution finds itself carrying excess baggage that is no longer useful.

How will the organizations designed to thrive in the nineteenth and early twentieth centuries learn to contribute to the 21st? Only by reinventing themselves through refocusing on individuals.

The key strength of 21st century organizations will not be their size or structure, but their ability to simultaneously unleash and coordinate the creative contributions of many individuals. Unleashing and coordinating may sound like contradictory actions. And in older models they would be. But we must develop new patterns of organization that promote alignment and collaboration while avoiding rigidity and stagnation.

Communication in the new organization will be more fluid, action more spontaneous. Think of the speed and agility of basketball versus the massed force of football. Think of a jazz combo trading solos, versus a marching band in lock step.

The individuals who will succeed as contributors in these new organizations also need to change. In fact, change will be the one constant in their careers.

Over-specialization and a limited perspective can be a dead-end trap. Students today cannot count on finding one smooth career path, because by the millions, the jobs that exist today will change radically tomorrow. Individuals will need to have tremendous flexibility to be able to move from one company to another, or from one industry to another. Those who are best prepared to do that will be the most successful.

We used to talk of "taking a position with the firm." Those are revealing words: Position and firm belong to a static model of rigid hierarchy. If you are only going to take one position, you can get by on only one point of view.

In the information age, however, a diverse educational experience will be the critical foundation for success. What tomorrow's students will need is not just mastery of subject matter, but mastery of learning. Education will not be simply a prelude to a career, but a lifelong endeavor.

Let me list some of the requirements of this new paradigm for lifelong learning.

- It should require rigorous mastery of subject matter under expert guidance.
- It should hone the conceptual skills that wrest meaning from data.
- It should promote a healthy skepticism that tests reality against multiple points of view.
- It should nourish individual creativity and encourage exploration.
- It should support collaboration.
- It should reward clear communication.
- It should provoke a journey of discovery.
- And, above all, it should be energized by the opportunity to contribute to the total of what we know and what we can do.

Higher Education has traditionally defined itself in terms of two missions: Instruction and research. In the past these have been seen as very different activities.

**Research**, which is primarily the domain of faculty and graduate students, is the process whereby we increase the world's store of knowledge.

**Instruction**, which involves all students, is the process whereby we transfer some subset of that knowledge to individuals.

But, as we have seen, it is no longer enough to simply transfer knowledge to students. It is not as though we can give young people a ration of knowledge that they can draw on throughout their careers. Instead, we need to give them access to the unbounded world of knowledge. That means we must prepare all students, not just professional scholars, to embark on a lifetime of learning and discovery.

**Communication in the new organization will be more fluid, action more spontaneous. Think of the speed and agility of basketball versus the massed force of football. Think of a jazz combo trading solos, versus a marching band in lock step.**

Which means that our students will not simply be learners, passively absorbing subject matter, but more like researchers actively exploring their environment.

To work in research is to recognize that knowledge does not reside privately in individual minds, or textbooks, or journals, or libraries, or laboratories or databases. Knowledge resides in a complex web that encompasses all of these. To work in research is to recognize that knowledge is not static. Everyone in the research community shares the responsibility to test our knowledge and to enlarge it.

The challenge for higher education will be to find ways of bringing to the process of instruction the passion for discovery that drives research.

Students today should master the skills and tools of research as part of their basic education. To give our students this mastery, we must create a learning environment in which research and instruction are integrated. I believe we all can make important contributions to that process.

If we succeed we will have found new ways of empowering individu-

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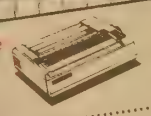

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# New Learning Tools In A Changing World

als—not in isolation from each other, but with pathways for rich communication and effective collaboration.

The transformation I am calling for—shifting focus from the institution to the individual—has a close parallel in history.

In medieval Europe people were subservient to the institutions of the church and feudal hierarchies. Then came the Renaissance, which redefined the individual as the epicenter of intellectual activity.

It did more than change people's perspective of the world; it literally invented perspective.

The medieval painter depicted great religious events with the most important figures appearing the largest. Composition reflected ideology. Then drawing styles changed. The Renaissance artist drew figures and buildings in perspective, the way they appeared to an individual observer. For the first time, point of view came into the world.

The many forces which converged to bring about the Renaissance galvanized around one key technology: printing.

The rise of printing led with astonishing speed to an explosion of literacy. The result was a new self-esteem for the individual. A wealth of invention. An excitement of the power of wonderful ideas.

We are, today, in need of a second Renaissance, which like the first can also be galvanized by technology.

Today we are on the verge of creating new tools which, like the press, will empower individuals, unlock worlds of knowledge and forge a new community of ideas.

We believe that the tools that show most promise for the new learning environment build on these core technologies: hypermedia, simulation and artificial intelligence.

Each of these technologies alone can enrich the educational process. Each gains additional strength when learners can share resources over networks. And when these technologies are fully integrated with each other, they will fuel a 21st century Renaissance—an outpouring of new learning and achievement.

**Hypermedia.** It's a new word for many of us.

Yet this term and its definition will become increasingly important the more we rely on personal computers to store, manage and retrieve information. In broad terms, hypermedia is the delivery of information in forms that go beyond traditional list management and database report methods. More specifically, it means that you don't have to follow a predetermined organization theme when searching for information. Instead you can make instant choices about where to go next.

What this means for instruction and research is that content is not bound by particular choices of organization. Instead content and organization become complementary tools that act on each other to deepen our understanding of the world around us.

Hypermedia gives us the capability to explore deeper, linking one idea with another as the student or researcher pursues his own personal learning path.

In a sense, hypermedia is nothing new at all. A researcher using a card catalog and reference materials traditionally had the opportunity to pursue ideas according to insight and interest. Hypermedia doesn't change that process; it merely accelerates it.

It's a natural way of working, but until recently, personal computers were too limited to address it.

Today, however, desktop computers can have more information on line than the largest mainframe managed ten years ago. We are coming to expect as standard in our installations high-speed magnetic hard disks, optical media such as CD-ROM and high-speed networks.

Established methods of finding related pieces of information seem cumbersome once we have experienced hypermedia.

Hypermedia can be seen as a new form of publishing. There are now readily available tools that enable faculty in any discipline to create richly branching presentations.

Just as hypermedia offers a new paradigm for exploring vast amounts of information, the second core technology, **simulation**, pushes the boundaries of experimentation.

Simulation takes us beyond the "what" to the "how and why."

We move from a static picture to dynamic visualization, from limited experience to diverse, multiple experiences.

The excitement in educational simulations today comes from generalized programs which allow professors and students to design their own simulations in particular disciplines.

Another new application of simulation is in the humanities and social sciences, not normally what you would think of as "computer-inten-

*continued on page 132*

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# TWO VIEWS OF DOS 4.0

## PC-DOS 4.0:
### *Toward A Better And More Powerful DOS*

**By Wayne A. Yacco**

*Everytime a more powerful version comes out, the community of satisfied DOS users grows larger.*

PC-DOS 4.0 is the latest version of the business community's nearly ubiquitous operating system. While there are prophets galore keen to predict its overthrow, heralding a new age of powerful multiuser, multitasking applications, that's not going to happen for all of the users who don't need or want the system-configuration complications, the additional hardware requirements and the new software that will be required to run in these new environments. Every time a more powerful version comes out, the community of satisfied DOS users grows larger.

DOS 4.0 features expanded-memory management which conflicts with other software products using expanded memory. The conflicts are common enough to have gained notoriety immediately upon 4.0's release. Otherwise, 4.0 goes a long way toward furthering the evolutionary trend toward a better and more powerful DOS. Its DOSSHELL command can be configured as either a graphic- or text-based interface—and the shell's menus can be used to eliminate the command line for unsophisticated users. Support for a pointing device is even provided.

DOSSHELL is certainly the main feature that distinguishes DOS 4.0 from its predecessors. It allows users to simultaneously display a tree of the system's directory hierarchy and the contents of a directory (like *XTreePRO*, *Topdos* and other utilities). It can even display the contents of more than one directory at a time. Files can be transferred, not only between directories, as with *XTreePRO*, but also between volumes—online storage devices such as hard and

## DOS SHELL Or DOSS HELL?

**By Royce Hall**

*Everyone knows that generic DOS is only as far away as the nearest mail-order telephone line, but Microsoft will look you right in the eye and say it ain't so.*

As usual, there are two versions of DOS 4.0: PC-DOS and MS-DOS. The former is a proprietary version which is tailored by IBM especially for its hardware platforms and includes a version of BASIC in ROM. The generic version is MS-DOS. Regrettably, the latest version of DOS has created a wider disparity between these versions than has existed in the past. It's not as safe as it used to be for the user to blindly purchase his DOS operating system.

Technically, every version of DOS is custom made for a specific hardware platform by the system's vendor—just like PC-DOS. However, as well as the PC standard is now understood by engineers, there's no longer any reason why most operating systems should require customization, unless the vendor deliberately wants the hardware to deviate. (Amstrad, Blue Chip, Vendex and others have chosen to make substantial changes in order to differentiate their products.) In fact, lots of systems run on exactly the same operating system: de facto generic MS-DOS.

Of course, it's an oversimplification to say that there are two varieties of DOS. Officially, there is no such thing as generic MS-DOS. Everyone knows that generic DOS is only as far away as the nearest mail-order telephone line, but Microsoft will look you right in the eye and say it ain't so. It doesn't take much effort to understand the duplicitous reasoning that's behind this.

It makes sense that Microsoft wouldn't be able to support all of the slightly different versions that exist. But some might say that by claiming that there is no generic version, they

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# PC-DOS 4.0 *continued*

*Once again, this release of DOS includes a substantial increase in cost. The IBM software alone lists for $150 ($95 upgrade), but many users may also elect to buy the optional Command Reference manual for $30.*

floppy drives.

There are several other new commands. The INSTALL command allows FASTOPEN, KEYB, NLSFUNC and SHARE to be initiated from the CONFIG.SYS file rather than later in AUTOEXEC.BAT. MEM displays memory usage and all programs in the system. SWITCHES allows an enhanced keyboard to function as a conventional keyboard when required by incompatible software. XMA2EMS.SYS and XMAEM.SYS provide (questionable) support for LIM 4.0 and the IBM PS/2 Expanded Memory Adapter/A respectively.

There are also some valuable additions to many of the older commands. For example DEL now has a /P parameter which prompts the user prior to deleting each match of the command's file specification.

Other command changes: ANSI.SYS has several new options, but still nothing remotely like those available in the powerful replacement alternatives offered by third-party developers. The APPEND command now allows more control over its searches. BACKUP will now format a diskette without requiring the user to abort and restart the procedure. The new FORMAT command can bypass its volume-label prompt and format media to less than full capacity. Both it and CHKDSK now indicate volume serial number and allocation units in their status reports. REPLACE can prevent files with older time stamps from accidentally replacing more current editions. MODE controls the keyboard's typematic rate, the number of lines on screen and additional asynchronous parameters. BUFFERS, CHKDSK, COUNTRY, DISPLAY, FASTOPEN, FDISK, GRAFTABL, GRAPHICS, KEYB, MODE, SELECT, SYS, TIME, TREE, VDISK and PRINTER.SYS also have minor additions.

Once again, this release of DOS includes a substantial increase in cost. The IBM software alone lists for $150 ($95 upgrade), but many users may also elect to buy the optional Command Reference manual for $30. The BASIC manual has been unbundled from DOS since the release of 3.3 as have several commands that were moved to the DOS Technical Reference. Adding the respective prices for these references ($45 and $105) more than doubles the total cost of DOS to a healthy $330.

While the user may have to purchase several pieces, the complete set of available documentation offers just about everything one could want, including guides to easy installation. Command Reference is the complete reference to the command syntax which was formerly contained in the standard reference manual. Although the standard manual still has information on the most common commands, the Command Reference adds less common commands and amplifies explanations with syntax diagrams and additional remarks and examples. Other than offering an incomplete list of commands, the most important difference in the standard manual is that it only gives optional parameters in the context of examples. The Command Reference lists them separately for quick and easy reference.

There is one other mildly disagreeable aspect of the IBM version of DOS 4.0. IBM has added a simple form of copy protection to this version—perhaps the first time it has chosen to use this strategy. The protection prevents the user from transferring the uninstalled software between media formats. PC-DOS now ships with either 1.2Mb 5.25" or 720Kb 3.5" media, not both. It is possible to use DISKCOPY to make backup copies, and the installed software can be moved from one machine to another, so most users may not be impacted by this. It's only a nuisance if, like me, you order 3.5" media because you have a B: drive in that format. Then you find that you can't install from B: or copy to your A: drive. Users who ordered their clone systems with 360Kb drives only will have to improvise.

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# DOS SHELL *continued*

even avoid having to support the one that is used by all of the many generic PC systems, the version sold by dealers for expressly that purpose, the one known and accepted by everyone in the business as a generic standard and, just maybe, the one that they *should* support. Microsoft, however, claims that no version is legitimately sold except with hardware.

Even if true, the claim appears less than laudable. After all, what's basically being said here is that although a need for a generic DOS exists (that's obvious from the thriving unauthorized, or gray, market), the policy is to withhold that product from the market rather than to legitimize it and provide support.

All of that notwithstanding, for practical purposes and for most of us, there are two versions of DOS. That's the way it's always been and, until now, other differences have not been obvious to most users, so long as the version they were using worked on their particular hardware.

DOS 4.0 is different. If you've heard the scuttlebutt about PC-DOS, you know that some early users seem to be in doubt whether the DOSSHELL command stands for DOS SHELL or DOSS HELL. So far, no one's tried playing the damn thing backwards to see if there are any secret messages about the devil, so we just don't know for sure. What we do know is that the IBM version has a number of flaws that conflict with the operation of many expanded memory products. Software that uses expanded memory can be rendered useless. That will tend to diminish the value of the software's strong points until IBM comes out with fixes—which are widely rumored to be forthcoming.

Unfortunately, forthcoming fixes may not be enough. There is speculation that, rather than offering users a fixed 4.0, IBM will add a few features to justify releasing a new version, probably 4.1, and avoid admitting to its mistake. It will certainly be interesting if IBM forces DOS 4.0 users to pay for an expensive upgrade just to save face, when they should have received a fully functional version in the first place. I suppose IBM's big enough to get away with it despite warranties of merchantability. It's unlikely that anyone would undertake a class action against all of that blue legal power.

As to MS-DOS, I've read that Microsoft claims to have avoided the pitfalls that IBM fell into with PC-DOS. If the claims have been made, Microsoft may have conveniently forgotten that there is no generic DOS about which to make them. No one can buy a copy

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from Microsoft, and none is available for review by the press. Attributing any qualities to this nonexistent product would certainly seem inappropriate. How, after all, would Microsoft have specific knowledge about compatibility issues when it implies that it doesn't have complete control over any of the custom versions in the marketplace?

When a piece of software has problems that aren't taken care of by the vendor, the market usually takes care of the situation by not buying it. In the case of a ubiquitous necessity like DOS, however, there are too many dependent users to wait for market forces to take effect. Everyone needs DOS. They need it right now, before they can use all of their other software. Most current users can wait for the fixes, but new buyers can't wait for the dust to settle. Some will have to get dirty just because they purchase hardware from a vendor at an inopportune time.

DOS 4.0 is a good idea. Its principal developers, Microsoft and IBM, are doing good work for all of the users who will choose to be left behind when OS/2 finally becomes the corporate standard. In principle it has a lot to offer the user and will eventually be a good alternative for many. The DOSSHELL is a powerful file manager, and the extensions to many other commands are those you wish had been in DOS all along. But the system's full potential is still somewhere in the future, at least for many PC-DOS users who need to use expanded memory. For now it's wait and see—if you can afford the luxury. Meanwhile, it wouldn't hurt if Microsoft implemented an attitude toward support that's as advanced as its development efforts.

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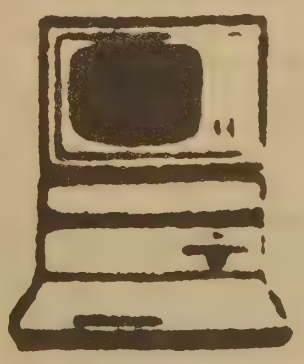

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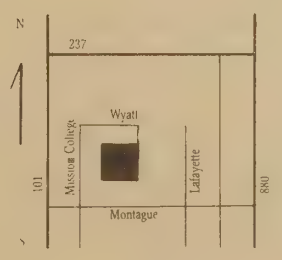

# The Zenith SupersPort 286

**By Ed Kahn**

The new laptops continue to get better and better. Zenith's latest offering, a super-fast 80286-based machine, confirms the trend and establishes incredibly high standards against which the competition must be measured. This powerful laptop looks identical to the SupersPort, an 8088-based machine. But despite the looks, once you begin to use the newest model, you will see a world of difference. The display, while the same size as the slower model, reveals a new high resolution of 640 by 400, employing a CGA double-scan technique. The results are startlingly crisp and clear.

The video display is simply the most visible difference between the identical-looking models. Throughout, this unit has incorporated almost every refinement you could reasonably expect in a machine of this class. And while the price tag is not cheap, the list price of $4999 for an AT-class computer with a 20-megabyte hard disk and one megabyte of RAM is not out of line. The unit is available for about $3500 at discount centers.

## The Laptop As A Desktop

Let's take a closer look at this beauty. It is powered by an 80286 processor running at 12 MHz, incorporating zero wait state design to further speed up the unit. This translates to a Norton rating of 13.1 times faster than a standard IBM PC. Through software adjustment, it is possible to slow the machine down to a mere 6 MHz, as some software is unable to accommodate the higher speed. The slower speed also conserves the battery. The computer comes with a 20Mb hard disk with an access speed of 28 milliseconds. A 40Mb hard disk is also available for an extra thousand dollars. Standard equipment includes a high density 3.5" floppy disk drive capable of holding 1.44 megabytes of information. The drive is also able to sense when a standard 720K disk is used and read and write to that specification.

Zenith, along with some of the other manufacturers, is trying to promote laptops as an alternative to desktop computers. In many ways this is becoming reality. Certainly, judged by speed, the SupersPort 286 can hold its own against any of the comparable desktop units. In other ways, however, there is still a compromise.

When we use a computer, the two most important elements with which we have direct contact are the display and the keyboard. My personal preference for a desktop display is a color monitor set up for the EGA specification. While the resolution of the Zenith is as great as that of a desktop set up the way I like, it is still monochrome. And while I have no objection to a monochrome display of the quality of the Zenith for a laptop, if I use this same machine as an office unit, I find that I must spend a lot of money to make it meet my requirements.

But it is possible. Zenith offers an expansion chassis for about $500 that will allow you to utilize up to three expansion slots that are fully compatible with PC/XT cards. In this way you can configure the computer to achieve the same high resolution when it is attached to a full size CRT monitor. I look forward to the time when it will be possible to attach a laptop directly to an EGA monitor without the need to use an expansion chassis.

## Keyboard

As for the keyboard, Zenith has provided as good a keyboard as I have found on any of the portables. The tactile response is just what I like, and the layout is pretty standard for a laptop. The 79 keys emulate a 101-key keyboard. This is accomplished through the use of an embedded numeric keypad and the use of an "Fn" key which allows the cursor keys to double as "home," "end," "PgUp" and "PgDn" keys. The keyboard also has tactile reminders to tell you where the "f" and "j" keys are.

For most purposes the keyboard is more than adequate and requires little compromise from the keyboard I use on my desktop unit. An accessory numeric keypad is available for $129 and the two together give you a nearly standard keyboard. Some laptops permit you to plug in a keyboard of your choice. Although I have no particular problem with the Zenith keyboard, I would prefer to be able to plug in my DataDesk 101 when possible.

**This powerful laptop looks identical to the SupersPort, an 8088-based machine. But despite the looks, once you begin to use the newest model, you will see a world of difference.**

The DataDesk is the best keyboard I have found, and I prefer to use it with any computer unless I am on an airplane or in the field. I actually use a portable most frequently in locations away from my desk where I could easily use a full keyboard. But the Zenith restricts me to using their keyboard either with or without the optional numeric keypad.

## Setup

Zenith has made the SupersPort 286 as easy to set up as can be. They have included a setup/configuration program that allows you to set many options, as well as the time and date for the included clock/calendar. This is a good deal easier to use than the more common software. The setup screen also allows you to enable or disable the optional modem. Two models, by the way, are available. The 1200 baud modem lists for $299 and the 2400 baud unit lists for $549. The setup screen also sets whether the serial port will be configured as COM1 or COM2 and whether the parallel port will be addressed as

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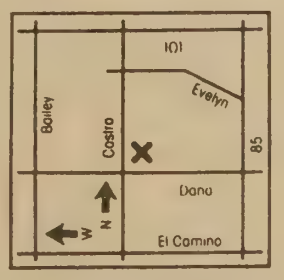

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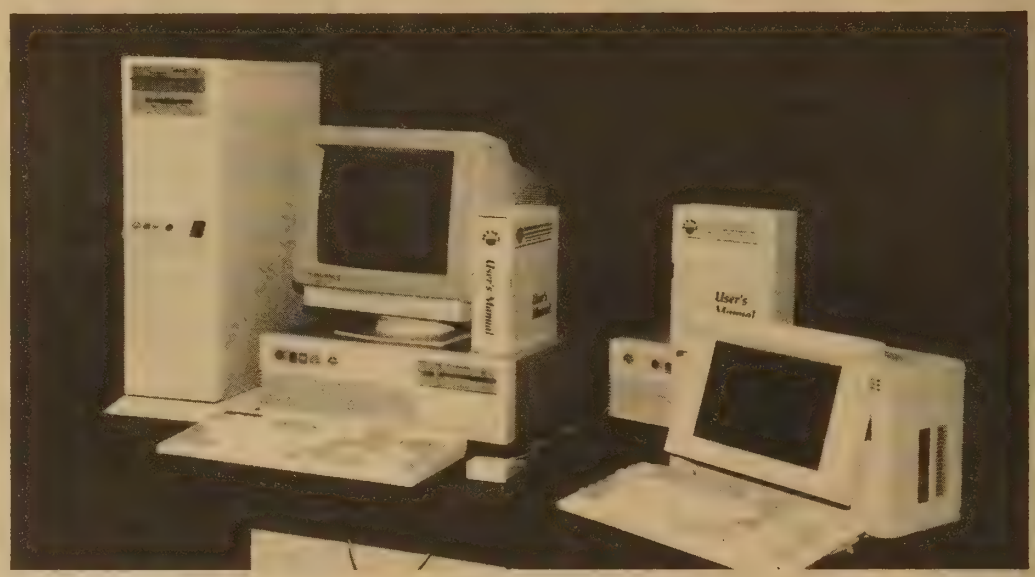

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The MAXX-386 provides 100% Compaq compatibility. MAXX-386 features true 80386 features and true 80386 performance, including 16 or 20 MHz 0 wait state memory bus expandable to 10 MB of 32-bit SRAM with choice of Award or Phoenix bios and a socket for 80287/80387 math co-processor. MAXX-386 comes in regular AT size or small footprint. The MAXX-386 gives you the best of all worlds. Keyboard selectable speed allows you to run software at 4.77 MHz, 6 MHz, 10 MHz, 16 MHz or optional 20 MHz. So you can continue to run your existing MS-DOS applications on your MAXX-386 and also take advantage of the more advanced multi-tasking and multi-user operating systems, including PC-MOS 386, OS/2, XENIX, UNIX, QNX, PICK or DOS 3.3.

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The MAXX-286 Plus is 100% IBM-AT compatible with a lot of horse-power under the hood. Its powered by Intels 80286-12 or 80286-16 Harris processor with the implementation of 80 ns fast RAM on board and operates at 0 wait state. An optional 80287 math co-processor for large number crunching enables MAXX-286 Plus to help you complete large jobs quickly.

| 20 MHz | CPU | Hard Disk Sequential | Hard Disk Random |
|---|---|---|---|
| MAXX-386 Cache Plus | 5:20 | 3:64 | 3:70 |
| AST-386 | 4:23 | 4:50 | 3:50 |
| AT&T-386 | 4:16 | 3:55 | 3:23 |
| Compaq 386 | 4:99 | 1:42 | 3:67 |
| IBM PS/2 | 3:89 | 3:12 | 3:06 |
| HP-Vectra | 4:00 | 3:08 | 3:28 |

Test done by HIMS at their lab and compared with InfoWorld May Issue on 386.

| Standard Features | MAXX-286 Cache Plus 0 Wait | MAXX-386 0 Wait | MAXX-286 Plus 0 Wait | MAXX-286-16 Plus 0 Wait |
|---|---|---|---|---|
| Processor | 80386-16/8 or 20 | 80386-16/4.77 or 20 | 8/12 MHz | 8/16 MHz |
| RAM | 1024 K to 8 MB | 1024 K to 10 MB | 1024 K to 16 MB | 1024 K to 16 MB |
| Cache | 64 K | 32K (optional) | | |
| Floppy Drive | 1.2 MB, 1.44/360 KB (optional) | 1.2 MB, 1.44/360 KB (optional) | 1.2 MB, 1.44/360 KB (optional) | 1.2 MB, 1.44/360 KB (optional) |
| Hard Disk Drive | 44 MB up to 300 MB | 44 MB up to 300 MB | 44 MB up to 300 MB | 44 MB up to 300 MB |
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LPT1 or LPT2. In addition to these choices, you can set how long the backlight for the display will stay on after keyboard activity stops. You can select almost any value depending upon the use you intend for your computer. Finally, you can decide how long you want your hard disk to stay on after it has been accessed. Most of these variables, fully explained in the documentation, will enable you to set up your computer for maximum battery efficiency if that is a high priority for you.

The SupersPort 286 comes with one megabyte of RAM, optionally expandable to two megabytes. The setup screen allows you to configure this additional RAM as either extended memory or as EMS. In addition to these options, the setup screen allows you to set the computer defaults to use the video display included with the computer or to use an external monitor as a default. A number of other configuration options are also addressed in the setup screen. This is a wonderful way of simplifying what is often a confusing and anxiety-producing task for a novice who really just wants to use a computer without having to learn technical details.

## Miscellaneous

As far as I am concerned, Zenith has the best battery setup on the market. It addresses the needs of both those users who really need a battery operated laptop and those who in fact only need a transportable computer which can be used with a standard AC power supply. If you need a computer which is battery powered, the four-pound power pack can be easily attached to the basic unit, which weighs only ten and a half pounds and has a footprint of approximately one square foot. Those users who only infrequently need the independence which battery operation offers can leave the battery pack aside and not have to deal with either the extra bulk or the extreme concern for energy efficiency which battery use imposes. The battery system is protected, so you do not have to fear overcharging the system. A fully charged battery should operate for about three hours of normal use, with the backlit screen operating all the time. Additional battery packs can be purchased to accommodate longer usage requirements.

In addition to the accessories I have mentioned, a full array of standard accessories is also available. Among them are an external 5.25" disk drive, a range of power supplies, a carrying case and a numeric coprocessor.

The design of the case in which the computer is housed is no less well thought out than any other part of the computer. The lid, which both closes the computer and houses the display, is held closed by two latches which are designed so that they cannot be opened unless the computer is lying on a flat surface. This prevents the top from accidentally coming open when it is being carried. Likewise, the computer makes a warning sound if it is turned on when the lid is closed. And lastly, the fold-down handle which is built into the case, makes it easily transportable, even if you do not buy the accessory case which not only houses the computer but also has an additional compartment into which you can store cables, diskettes, the owner's manual and perhaps the optional disk drive or a small portable printer.

The documentation which comes with the computer is more than adequate. The manual covers all of the essential features and is clear enough so that even an inexperienced user should have no trouble getting started. Not only are full instructions provided, but all of the possible error messages are explained with suggestions about how to proceed should any of the messages appear. And finally, a glossary is provided so that the user need never be in the dark about any of the specialized computer terms that are used in the manual.

A final feature of the package that needs comment is the one year warranty which covers parts and labor. For an additional charge, other deluxe warranty packages are available, including 48 hour guaranteed repair/exchange or 24 hour executive swap services.

All in all, the Zenith SupersPort 286 is indeed an impressive package. If you need the additional power and speed which this computer offers, it is well worth the additional cost. I find it the best value in its class and a delight to use.

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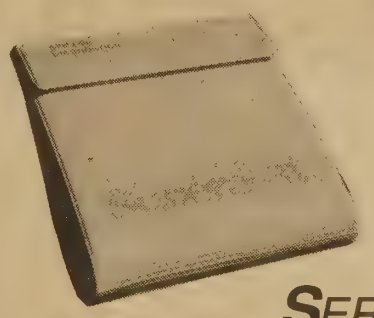

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# The Norton Commander 2.0

**By Thomas Cox**

DOS machines have several strong points, one of which is not an easy-to-learn operating system. Making DOS easier is big business: there are over 20 million DOS-based microcomputers in the U.S.

DOS shells are programs that will manage files and directories for you, usually more easily and sometimes faster than using DOS yourself. One such shell is *The Norton Commander*, an $89.00 package from Peter Norton Computing, Inc. of Santa Monica, California. *The Norton Commander* allows you to perform any DOS activity, including file management, all without having to know DOS commands, or remembering how to spell the name of a file. That is important, because most DOS commands require you to spell out all file and directory names completely and correctly.

## Features

**Dir listing:** Initially, *Commander* opens a window on the right-hand half of the screen, listing all the files and subdirectories in the current directory. It lists sub-directories first, in all caps. That way, if you're passing through the current directory on your way to another one, all the subdirectories are right there, including "..," the "upstairs" or parent directory. That makes it a breeze for you to change your current directory. (DOS would require you to use the "cd" command; if you don't remember which subdirectory you want, you need to use the "dir" command and then plod through the list looking for the directory you want.

Files are shown in lower case, which is more legible than the all-caps display of the DOS "dir" command or the Microsoft *Windows Executive*. The file list can be sorted by name, date, size or extension. The file names can be displayed either in "full" mode, showing file sizes and creation dates, or in a "brief" listing showing only file names. "Brief" can display three times as many names at once as "full."

**Menus:** All of *Commander*'s commands are available through pull-down menus. Most are also available as function keys, shown across the bottom of the screen. Every command can be chosen by mouse actions, keystrokes or any combination of the two. The names of *Commander*'s five menus are "Left," "Files," "Commands," "Options," "Right." The menus "Left" and "Right" are identical, and control the contents and format of their respective half-screen windows. A window can contain the listing of any directory on any disk, or a "tree" listing of all directories on a disk. (The "tree" shows how directories are related—which ones contain which other ones.) When both windows are open, you can copy and move files between any two directories on any disks very quickly.

**Navigating:** One of *Commander*'s slickest features is its "tree" display. It shows all the directories and subdirectories on a disk, and it lets you jump straight into any one from anywhere else with a mouse click or a keystroke, much quicker than the DOS "cd" command.

**Searching:** *Commander* will search for a file, checking every directory on any drive and showing all matching filenames in a separate search window. Additionally, it can search in the current directory with a hot-key feature, allowing you to type the first few letters of a file name, displaying matching files one by one.

**File commands:** *Commander* provides several ways to select multiple files. In addition to one-by-one selection, you can specify filenames using wildcards; for example, *.BAK, or J??.TXT. A selected group can then be copied, moved or deleted. If you are copying a lot of files from a hard disk to a floppy drive, *Commander* will, if necessary, automatically split the files across several floppy disks.

**View and Edit:** As you browse through old files, throwing some out and archiving others, you may discover some you don't remember. *Commander* provides a way of looking directly into files, without leaving DOS or booting a separate program: the View command. The contents of any text, Lotus *1-2-3*, or *dBASE*-type file are instantly displayed on the screen. You can scroll through long files a line or a page at a time. Alternately, use the Edit command to edit text files.

**Those of us with DOS machines and hard disks may find it easy to lose track of files. Short of buying a Macintosh, DOS shells are an excellent way of managing files and of keeping the sometimes user-hostile Disk Operating System under control.**

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# REVIEWS

**Customizing:** You can customize the Edit command to call up the text editor of your choice—MS *Word*, *WordStar*, *WordPerfect*—rather than the built-in *Commander* editor. This customizing feature is highly flexible. Some programs, for example, need to have options entered on the command line. The *Commander* custom-Editor feature lets you specify command-line options like 'WORD !.! -N /Q'. If you then highlight the file 'FOO.DOC' and tell *Commander* you want to Edit it, *Commander* invokes the DOS command 'WORD FOO.DOC -N /Q'.

You can also customize *Commander*'s menus, either by changing the existing ones or by creating new, local menus of your own. A menu can contain any number of DOS commands.

*Commander* lets you specify which DOS file extensions belong to which applications. For example, tell *Commander* that ".DOC" files should be opened by Microsoft *Word*. Then, double-click on FOO.DOC, and *Commander* will open that file using *Word*. Using this feature, you can specify any number of extensions, so that you can pick a file and open it directly, without having to remember where its application program is.

**Error handling:** *Commander* is not memory-resident, so it avoids the host of conflicts to which such programs are prone. *Windows* and *Windows*-based applications, for example, can be launched from within *Commander*. Interestingly, however, *Commander* will not run from within *Windows*.

*Commander* comes as two programs, NC.EXE and NCSMALL.EXE. They perform the same tasks, but the latter uses less memory (16K rather than 161K), and is disk-intensive, so Norton Computing recommends it only for hard disk users.

One feature I would have liked, but which was not available, is the ability to move a subdirectory from one location to another. DOS does not normally allow this. It is one of the more useful features available through such shells as Digital Research's GEM and the Macintosh Finder. Without such a feature, the only way to move a subdirectory to a new location is to create a new subdirectory in the new spot, copy all the files to the new place and delete all the old copies of those files and the old subdirectory. If the subdirectory to be moved contains subdirectories of its own, then each one requires the same steps.

**The Norton Commander is in some ways superior to the Macintosh Finder and GEM, particularly in its "tree" display, and definitely worth looking into.**

## Documentation

The documentation is excellent—some of the best I have seen for any microcomputer program. The get-started-quick documentation is called the Norton Commander Picture Book, and it is exactly that: a pictorial walk-through of the basic *Norton Commander* features. The comprehensive Norton Commander Reference Manual is both well written and well laid out, with tabbed sections and one page devoted to each command. The index, too, is good, and an appendix contains exhaustive command-key summaries.

## Conclusion

Those of us with DOS machines and hard disks may find it easy to lose track of files. Short of buying a Macintosh, DOS shells are an excellent way of managing files and of keeping the sometimes user-hostile Disk Operating System under control. *The Norton Commander* is in some ways superior to the Macintosh Finder and GEM, particularly in its "tree" display, and definitely worth looking into. Among DOS shells, *Commander* is one of the smoothest, friendliest and most well thought-out available today.

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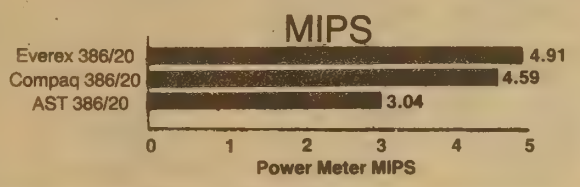


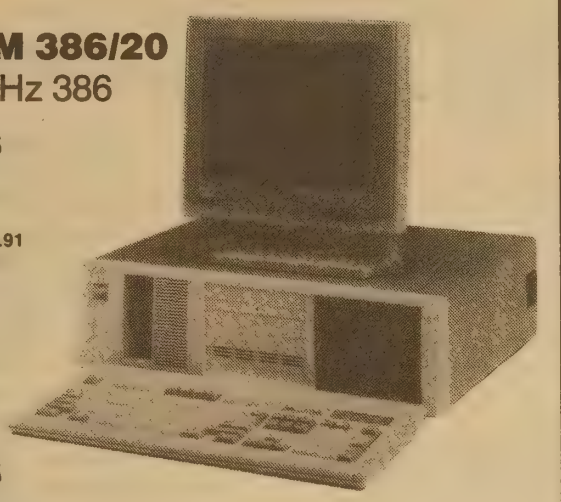

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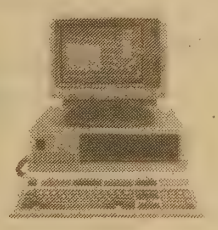

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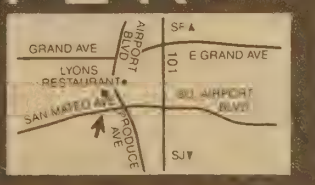

# WordStar Professional Release 5

## By Ed Kahn

A couple of years ago, when MicroPro reorganized and issued *WordStar Professional* 4.0, I reviewed the product in glowing terms, but at the same time suggested some improvements. At the time, a MicroPro representative replied that release 4.0 was merely a stop-gap product and that, with the time it bought, the company would begin work on a truly competitive program.

Now, a couple of years later, that product has been released as *WordStar Professional Release 5*. The list of new and changed features contains over 300 items. The most important of these new capabilities are windows and automatic reformatting. The new *WordStar* is now really more than a mere word processor. Indeed, it does have most of the features of the competition, but it is also now put together as a kind of integrated package which includes several other stand alone programs that work very nicely in conjunction with the word processor.

Three major areas are covered in the included programs. *PC-Outline* is a first rate outline program that can be run either as a memory resident program or as a conventional outliner program. The second program is *TelMerge*, a communications program that does all that we would expect from such a program and fits hand-in-glove with *WordStar*. And finally, they have included *ProFinder*, a DOS shell program that allows you to organize, move, view, edit and sort files in a variety of ways.

### Features: What's New

*Wordstar Professional 5* has a new look when it is first installed. MicroPro has added pull-down menus, which are a helpful feature for those using this product for the first time. But for old *WordStar* hands, this feature can be toggled off, enabling you to choose commands from the menus to which you are accustomed. These classic menus, as the folks at MicroPro are fond of calling them, resemble those of earlier versions of the product, but also contain new commands that were not in earlier releases. As you invoke certain commands, you will be presented with a secondary dialog box containing options. At any time, however, you can shortcut the selection process and accept default values by pressing F10 to carry out the command.

*WordStar 5* is much larger than any of the earlier versions. You will need a minimum of 384K to run the entire program, although 540K is recommended. If you are running with the smaller memory, it is necessary to use the "384K.pat" file to reconfigure the program to run in the smaller space. The new *WordStar* is also a good deal more versatile than its predecessor. A vast library of printer drivers is included to enable you to run virtually any printer and utilize its features. Type fonts are easily selected for the whole document or any part.

Although the newest release of this word processor will allow old users to learn the product easily, there are differences that will have to be mastered. Most significantly, page layout is now largely arranged in terms of inches rather than columns. This forces a different way of thinking for those used to laying out pages in terms of columns, but is necessary in order to accommodate printers that can handle multiple type faces and font sizes. The transition is facilitated by the inclusion in the status line of both columns and inches. So if you are used to a 65 column text, it is easy to see that this translates into a 6.5" text width (if you are using the standard defaults).

While the last version of *WordStar Professional* had a wonderful spelling checker, the new one is improved and includes the ability to detect double occurrences of words. I have always been amazed how many times I overlook this error and am delighted to have a spelling checker that calls it to my attention. Likewise, the ability of the program to come up with the word I had in mind continues to amaze me. The spelling checker tells me that "baility" is really supposed to be "ability," but it still fails to identify "newmoonia" as "pneumonia"—a feat that was performed by the *WordPerfect* checker. But the checker and thesaurus are both able to give me definitions of words, a feature that I have long wanted.

**You can easily copy material from one window into the other. This is a wonderful way to enter addresses from an address file into a letter or for using vast research resources that you may have saved in files on disk.**

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Unlike the earlier version of *WordStar*, in which you had to specifically install the thesaurus, the current version has the checker and thesaurus all together in a program that is easily invoked. You can check on an individual word in your text or a whole file, or ask the program to check a word before you enter it into your text.

But the real beauty of the newest update lies in features that the competition has had for a long time. The most significant improvement is the auto formatting. This allows you to write and rewrite without having to reformat the paragraph. While it seems like it shouldn't be such a chore to reformat a paragraph when you edit, it is a real luxury to see this automatically done for you as you are working. If, for some reason, you don't want this feature enabled, it is easy enough to disengage it either at the format menu while you are working, by a dot command, or more permanently by modifying the default configuration.

Another long overdue feature is the ability to open a second window in which another copy of the file you are working on or a different file can be held. This feature makes it easy to revise a manuscript while constantly comparing it to the original, even after you have made changes. However, you must be careful when saving the file to make sure that you do not mistakenly overwrite a backup version that you wanted to save. You can easily copy material from one window into the other. This is a wonderful way to enter addresses from an address file into a letter or for using vast research resources that you may have saved in files on disk.

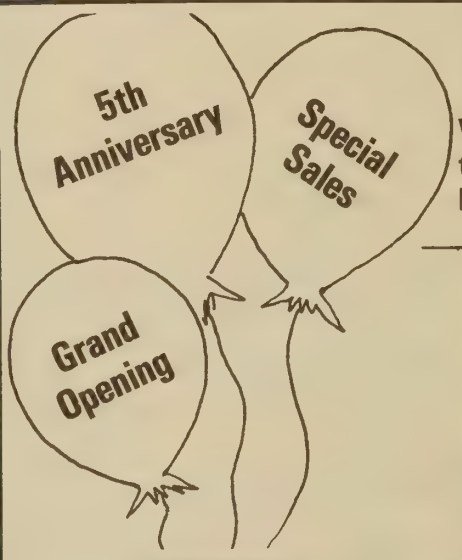
Not only can you create the second window, but you can change the size of either. If you like, for instance, you can open a second window, but change its size to zero so that you can in effect toggle between the two windows. Whichever window you are in will be the size you have designated. This adjustment can be done on the fly or permanently set as a default in the initial configuration.

And finally, MicroPro has added the ability to make either footnotes or end notes. For many writers this is a feature that they will never use, but for those who need this capability it makes the difference between being able to use *WordStar* or having to select a different product.

One of the deluxe features that has been added to *WordStar* is the preview function which allows you to look at a manuscript exactly as it will print out before actually printing the file. You can see each of the pages displayed in tiny form, including headers, footers, notes, columns and all other details so you can know exactly how the document will look in its final form. All printer codes and such are left out of the preview. Furthermore, you can zoom in and out to examine a particular page in more detail and make changes if you like. Grids can be added to the preview in order to allow you to check alignment. The preview feature, however, works only if you have a monitor capable of displaying graphics.

From the very earliest versions of *WordStar*, MailMerge has been a powerful feature. Release 5 has not essentially changed this function, but it includes a MailList module that makes it a good deal easier to set up mailing lists and to create documents using this information than ever before. While MailMerge is a powerful tool, it is still not as simple to implement as it might be. I suppose that, in order to maintain continuity, MicroPro has chosen not to radically alter the way this feature works. In any case, this part of the program works perfectly, and anyone who has a need to create form letters, labels or lists will find the program up to the task, no matter how complex. The *WordStar Professional 5* documentation contains a whole section on applications, many of which utilize MailMerge. Specific instructions are included for creating form letters and mass mailings, figuring loans and interest, preparing invoices and developing many other specialized applications. All together, over 50 specific tasks are covered in this section, only some of which rely on MailMerge.

While the applications section of the documentation gives you step-by-step instructions for performing specific tasks, most of the applications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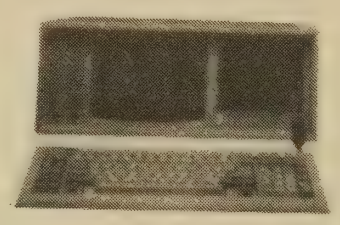

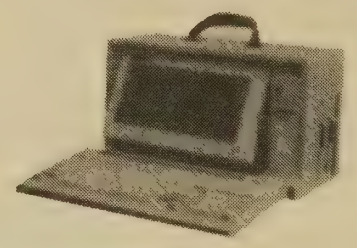

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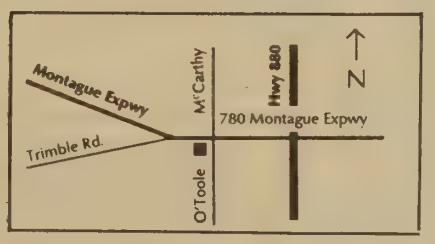


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rely upon some element of the main *WordStar* program. But the *Professional 5* release includes several programs in addition to the basic word processing package.

### ProFinder

*ProFinder* is a stand-alone program, constructed in such a way that it can be most effectively used in connection with *WordStar* and can in fact be accessed from within a word processing application. *ProFinder* gives you the ability to view, organize, move and in other ways manipulate files that reside on your hard disk. If a user does not have another DOS shell like *X-Tree* or *QDos*, *ProFinder* will be a breath of fresh air! No hard disk computer user should be without such a program.

*ProFinder* is powerful and especially suited to *WordStar*. The real power of such a program comes from its ability to work with a group of files. For instance, you can tag a bunch of files and have them all moved to another location, or erased or copied. Or you can organize all of the files in a directory alphabetically, or by extension, or even by date of creation. You will love this module if you have been struggling with DOS!

### PC-Outline

Another powerful program included with the latest release of *WordStar* is *PC-Outline*. This program has been around a long time as a stand-alone program; it's been available as shareware or commercially through Brown Bag Software. The inclusion of *PC-Outline* in the latest *WordStar* release is a good move. It is impossible to adequately review this program in this limited space, but I will say that this is one of the best outline programs available; it can be run either as a memory resident program or as a stand-alone application. For years I shied away from outliners, primarily because they are not as easy to learn as some of the really intuitive applications. But in the last year or so, I have relied increasingly on an outliner and find that it actually does something that I am unable to do on my own.

The basic concept of an outliner is that you can enter short pieces of data and then fashion this information into a list, categories or an outline, which is essentially a list categorized into topics and subtopics. When you move a topic, all of the related subtopics are carried along. While it doesn't sound like that big a deal, I have found that for certain kinds of complex material I am able to use *PC-Outline* to come up with an organization that I wouldn't have reached on my own. Starting from a basic list, the outliner gives you the ability to sort and resort the material until it falls into categories that seem to make sense.

While I highly recommend an outliner for writers, it turns out that lots of people besides writers are using outliners. Executives, for instance, are using them for preparing a daily schedule or to-do lists. If you have any interest in an outliner, the one included with *WordStar* is one of the best, and well worth checking out.

### TelMerge

The final standalone module included with the *WordStar* package is *TelMerge*, a communications program for use with a modem. And while a thorough review of this pro-

**One of the deluxe features that has been added to WordStar is the preview function which allows you to look at a manuscript exactly as it will print out before actually printing the file.**


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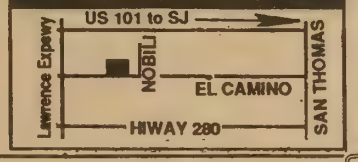


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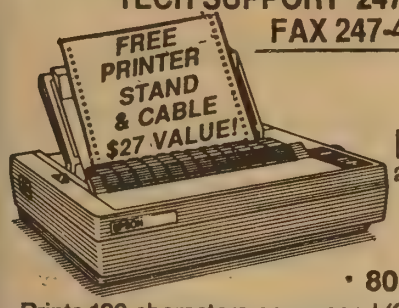


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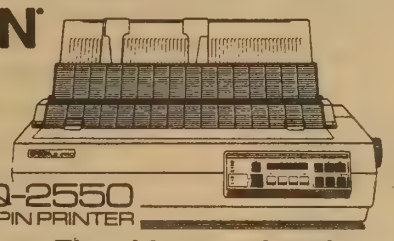

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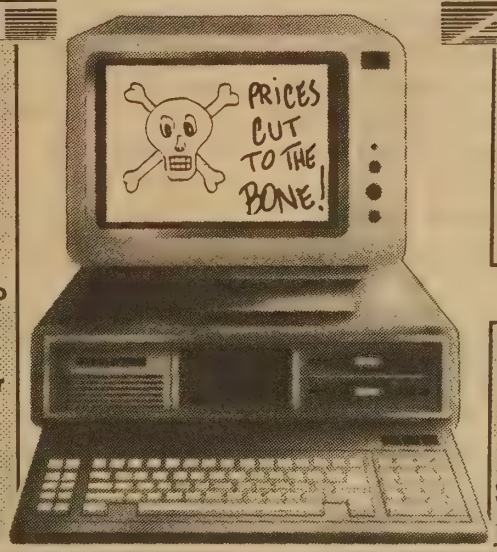


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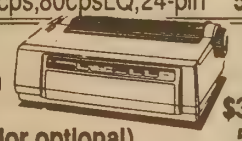

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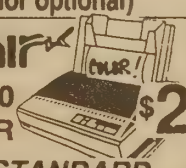


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gram is not possible here, I can assure you that if you intend to use a modem to communicate with the outside world, this is a more than adequate program. It is especially well suited to *WordStar*. The documentation is thorough and well organized. Specific sections are included for communicating with services like CompuServe, MCI Mail, The Official Airline Guides, The Source and an array of other communications services.

## Support

A final feature of the newest *WordStar* is the newly improved service policy that is included in the purchase price. All technical questions are handled efficiently seven days a week or through an 800 number. Each time I've called I have been put on hold while waiting for a technician, but because it is a free call I have not seriously objected to the wait. Understandably, with a new product there would be an unusual number of questions for the staff. But when I got through, the staff was courteous and knowledgeable. If the technician did not have the answer, I was put on hold while the information was found. In one case, the technician asked to call me back and did so within a reasonable length of time. I know of few products that have such a liberal and efficient technical support policy.

## Wish List

So, when you consider the breadth of the new *WordStar* package, it is indeed quite impressive. I do, however, have a few suggestions for improving the basic word processing program.

First, although the program can be set up in the initial configuration to display 43 lines on the screen if you have an EGA graphics card, it would be useful if there were a toggle that could invoke this denser display in the middle of work. This would be an especially useful feature when working with two windows, as the normal 25-line display can hold only a limited amount of text.

A second suggestion would be for a toggle that would hide dot commands and eliminate the line each requires from the display. Certain kinds of writing like screenplays repeatedly call for changing margins. When you have a screen filled with text which moves back and forth between two or three different formats, a good deal of space is taken up with dot commands and it is difficult to see enough text. The earlier version of *WordStar* allowed you to make these changes without dot commands being displayed, but the tradeoff was that these new formats were not saved to disk when the file was saved. I want the best of both worlds and it shouldn't be that difficult for MicroPro to fulfill my dream. So I still look forward to *WordStar Professional 6*!

Now that MicroPro has become fully competitive, it is appropriate to ask if this should be the word processor of choice. Certainly if you are an old-time *WordStar* fan, this is the program for you. It has abundant features that will thrill you and won't force you to learn a new program. On the other hand, if you are starting from scratch, you might still want to look at the competition to see just which package offers you the features you most value. Competent as the program is, it still is not a hands down winner.

**Certainly if you are an old-time WordStar fan, this is the program for you. If you are starting from scratch, you might still want to look at the competition. . .**

**Resources:**
*WordStar Professional* 5.0
$495.00 (Upgrades $119.00)
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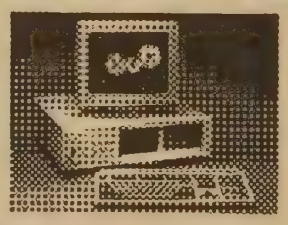

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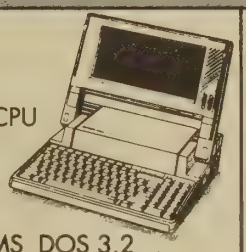

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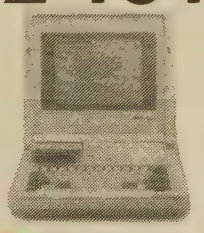

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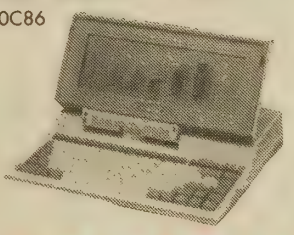

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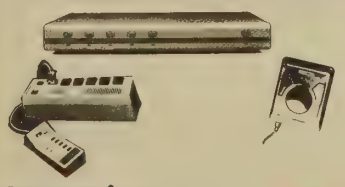

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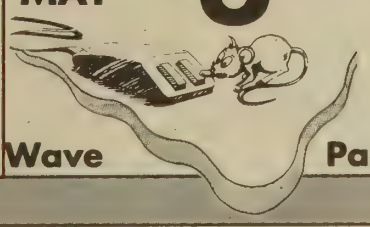

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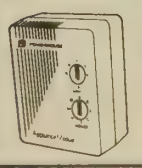

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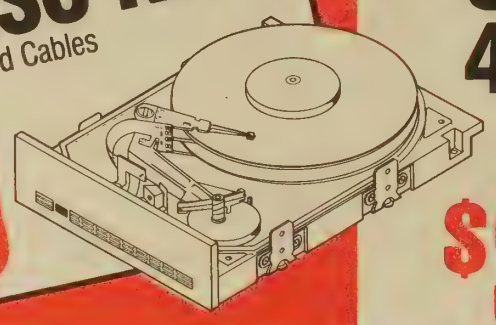

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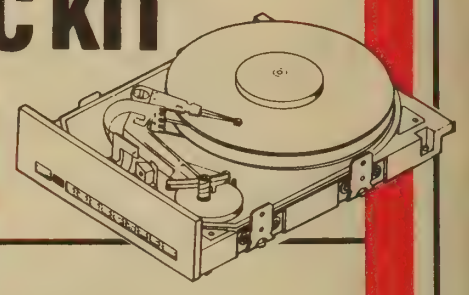

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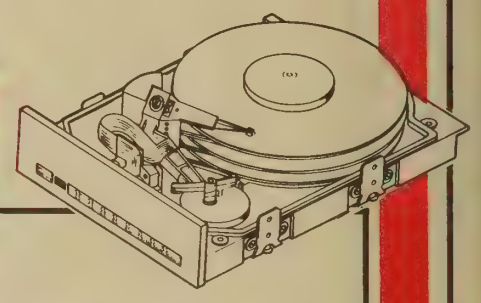

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29 ms Avg. Access

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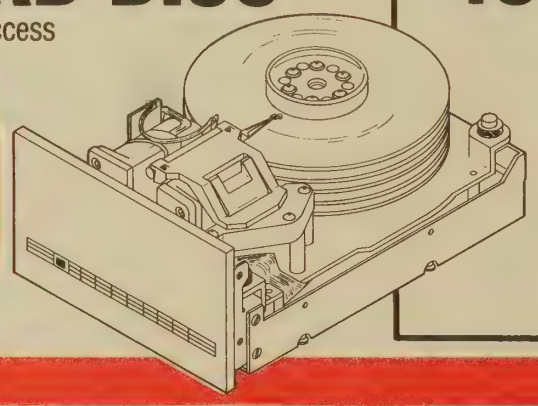

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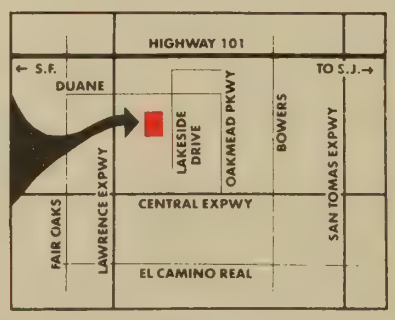


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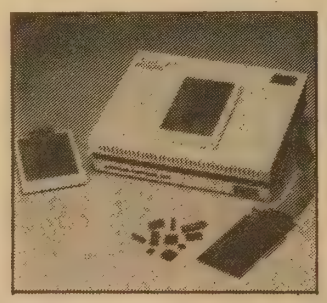

**ALLPRO**

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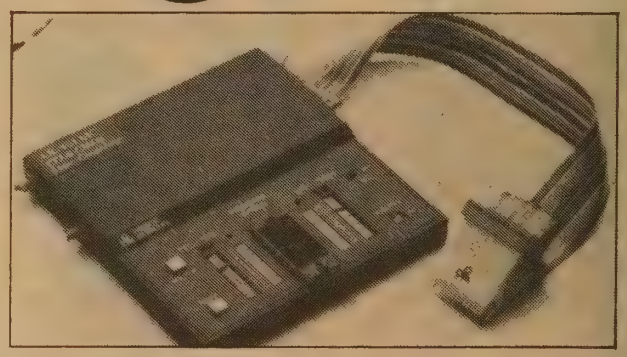

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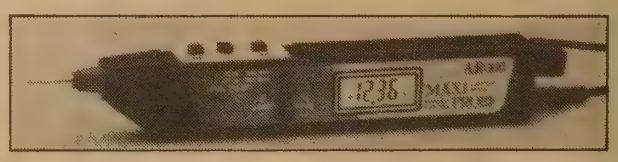

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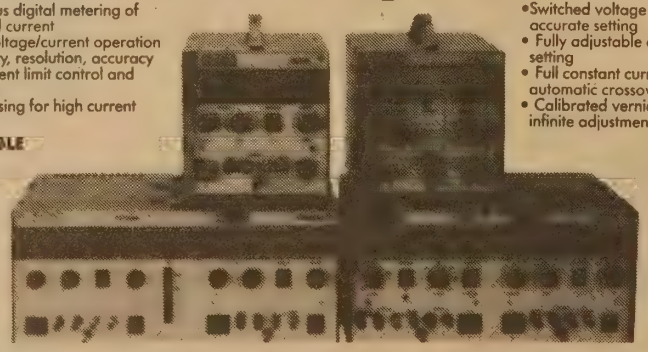

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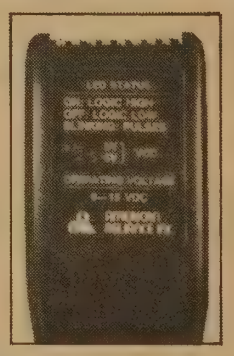

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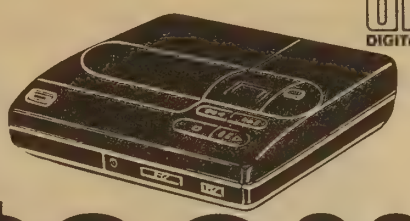

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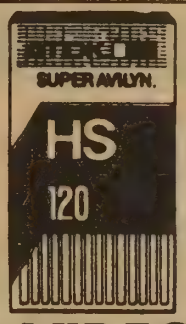


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**VHS VIDEO CASSETTE TAPE**

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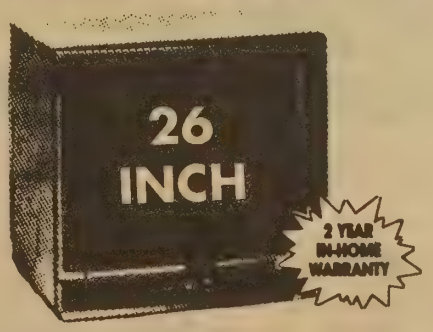


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- 152-Channel Quartz
- Synthesized Tuning System
- Two Full-Range Matched Speakers

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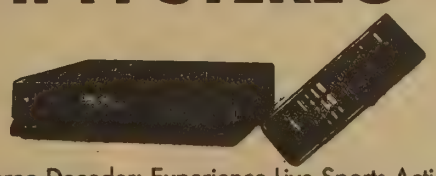

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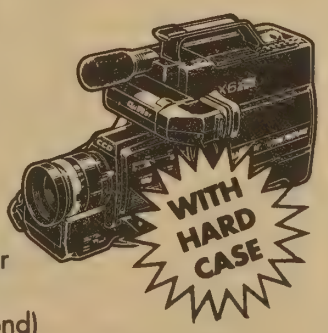


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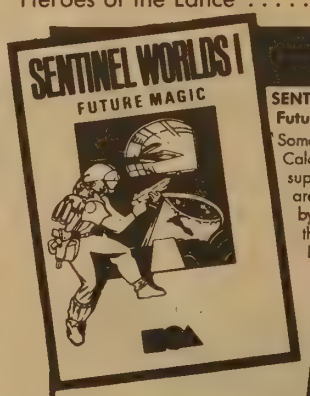


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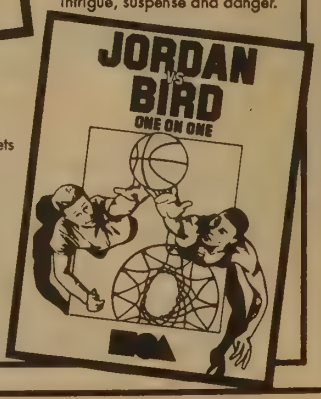


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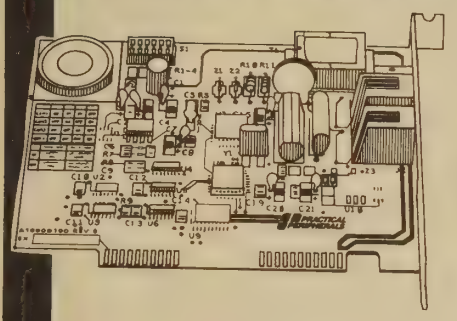

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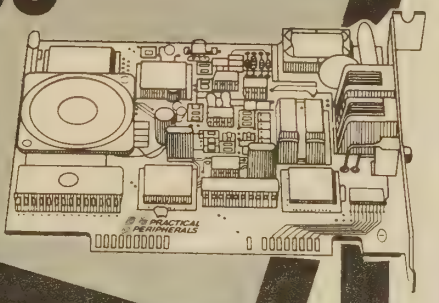
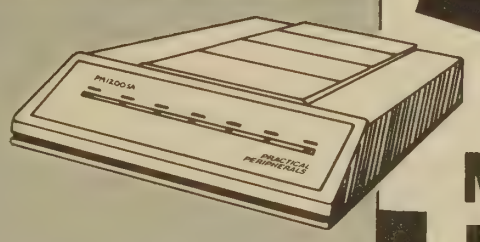


## 1200 BAUD EXTERNAL MODEM



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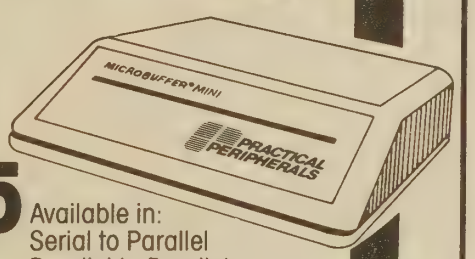


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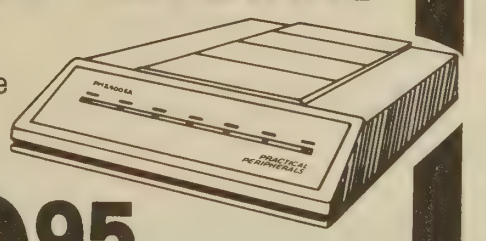

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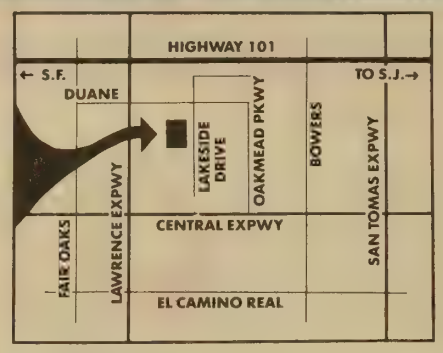

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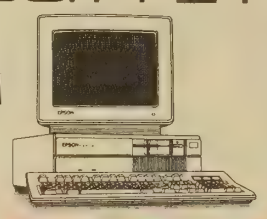

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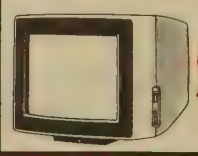

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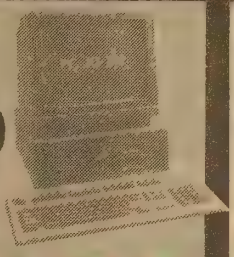

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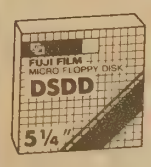


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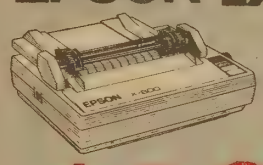

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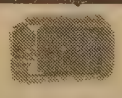

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# The Flying Dutchman

## *Fast Laptop-To-Desktop File Transfer*

**By Jeff Spurrier**

Ever since I got my first laptop computer six years ago, I have struggled with the headache of transferring data from one machine to another. It seems so obvious, and yet, in computing the simple things are often made to appear impossible. Serial ports, I have decided, are God's way of keeping us humble.

I've been the frustrated matchmaker for an Epson PX-8 to a Kaypro II, a Toshiba 1000 to a Kaypro XT, and a NEC Multispeed to an Everex AT. Over the years I've tried shareware, building my own cable, *Brooklyn Bridge* and *Lap-Link Plus*. When I found out that my Kaypro XT had a non-standard serial port, I finally gave up and put in a 3.5" drive. And once I upgraded to the Everex, I assumed such non-standard problems would be a thing of the past. But surprise! Even *Lap-Link Plus* refused to connect the Everex AT to the NEC. And I was again thinking of going the 3.5" route when out of the east on a breeze smelling of tulips came the *Flying Dutchman*.

*Flying Dutchman* is strikingly different from most link programs in that it goes through the parallel, rather than the serial, port; the speeds afforded by choosing this route are indeed impressive: 250K per second—more than twice as fast as *Lap-Link*'s 115K. According to the press information, the cable/program package can transfer anything from files to entire directory trees between all IBM-compatible PC machines, as well as OS/2 systems. A full 20 meg hard disk (including hidden files if you so choose) can go flashing by in under 14 minutes, making backup problems a thing of the past.

Needless to say, I was skeptical. Having suffered more than most from MESS (Mostly Errors Serial Syndrome), I knew in my heart that this would be just another exercise in frustration, plodding through yet another worthless installation procedure that would require an inevitable search for the offending port address.

However, when I got the package from *Flying Dutchman*'s makers, Holland-based Cyco Automation, I was instantly intrigued. The installation looked absurdly simple—just copy the tiny unprotected program (62K) onto a user disk for each machine and type FD. The manual was all of 12 pages long and, typically, I didn't even open it.

I hooked up the accompanying cable between the printer ports, and in the blink of an eye I had transferred a 20K text file from the NEC to my AT. I couldn't believe it. It was too easy. No bizarre port installation, no mucking around with a config.sys file. To add icing to the cake, *Flying Dutchman* is totally *WordPerfect Library* compatible, so I can go from my word processing directly into the transfer mode with one simple keystroke.

With really only a few commands (send, receive, test the connection cable and quit) the current version (4.10) of *Flying Dutchman* doesn't really compare with programs like *Lap-Link Plus* which are top heavy with utilities, some of which *Flying Dutchman* could use in order to make file manipulation and previewing a little easier. (And according to the Cyco offices in Atlanta, the next version of *Flying Dutchman*—due out at November's COMDEX—will be far more utility oriented.)

It may not have all the bells and whistles of *Lap-Link Plus,* but it is cheaper, easier and faster. There's not much else to say. In this age of powerful multi-tasking applications, it seems a little strange to get excited about something that seems simple and single-minded. *Flying Dutchman* does one thing, but it does it accurately, quickly and, most importantly (at least from a personal standpoint), successfully.

At $99, the program is truly essential for any laptop user who is having serial connectivity problems. The minimum requirements are a PC-compatible machine at 4.77 MHz, 256K memory, one parallel port and MS-DOS 2.0 and up. And fortunately ordering a copy doesn't mean a trans-Atlantic phone call. Cyco is based in Atlanta (404-634-3302) and is distributed through ADN Marketing in Utah (801-377-6266).

**Flying Dutchman is strikingly different from most link programs in that it goes through the parallel, rather than the serial, port; the speeds afforded by choosing this route are indeed impressive.**

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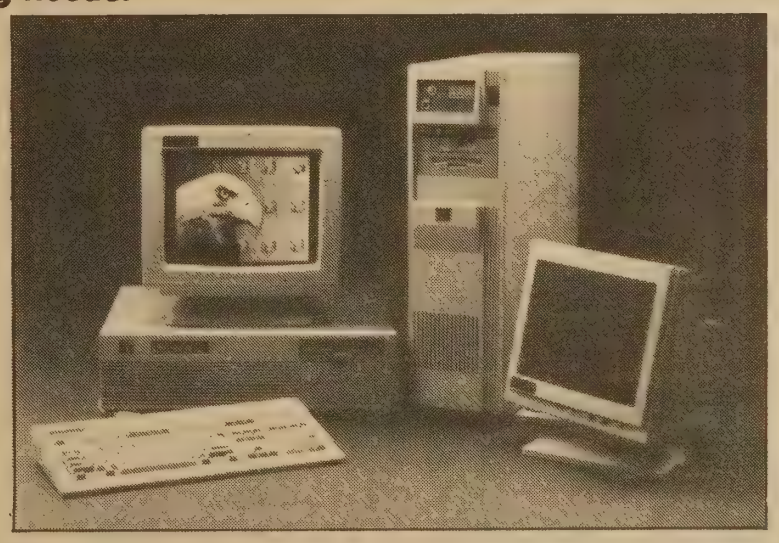

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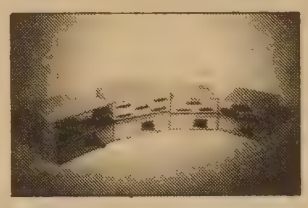

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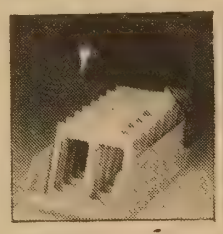

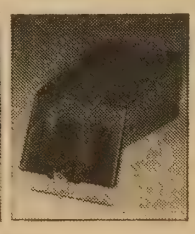

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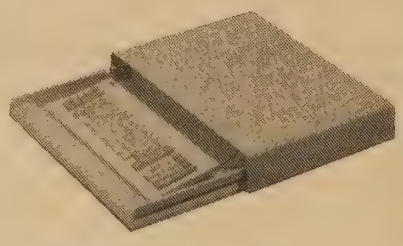

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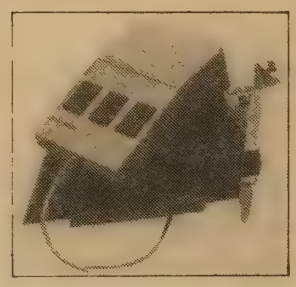

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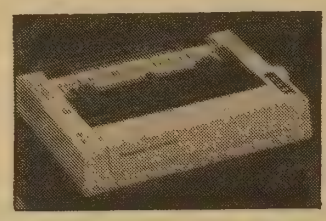

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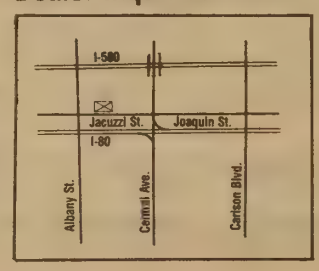



# REVIEWS

## BOOKS

### Sybex Computer Blue Book: Summer 1988

**Published by:** NACD, Sybex Inc.
**Suggested retail:** $9.95
**Reviewed by:** Robert D. Athey Jr.

This little paperback is the ultimate reference on what a new or used computer should cost, somewhat like the auto blue book the banks use to value cars for loans. The book is simple to use, and is simply organized. Its two major sections consist of price information and directory listings.

The price information is organized by classes of computers, some based on CPU chip or operating system, and some by manufacturing company. Somewhat oddly, Apple, IBM and compatibles, Macintosh, Commodore and Tandy (the latter labelled non-MS-DOS) are listed by manufacturer, while CP/M (S100/Z80) and PS/2 are categorized by system. There are two other categories, "business computers" and "general—all systems," but they are devoted mainly to the discussion of peripherals. An introduction explains how to use the book, discusses regional price differences (prices tend to be lower than average in California) and offers a helpful list of abbreviations and terminology.

The book lists computers as CPUs or entities (where applicable), and also lists peripherals (printers, modems, CRTs and so on) and software (i. e., Borland's MS-DOS packages). I am really pleased to see the number of companies listed as CP/M software suppliers.

There are some quirks in the listings. For instance, the Kaypro II is indeed listed, but it's listed near the bottom of all the IBM compatible Kaypros. The ON! system, a commercial CP/M computer sold to businesses, is not listed at all. The Visionary modem and the CP/M and MS-DOS Amstrad computers, all current commercial products, are also not listed. Sinclair/DynaByte/IMSAI computers are not listed, while the Osborne 1 and the Tandy Color 2 computers are listed. And where are the Atari computers?

Since I have an interest in optical character readers, I looked up DEST, SABA and QMS; I found company name, address and phone number for manufacturers and distributors, and even some used computer dealers (in a separate section). QMS is listed in the index, but no optical character readers, just printers. SABA is listed among the manufacturers (as is QMS), but has no products listed and is not indexed. DEST doesn't exist. Checking QUADRAM for print buffers, I found them indexed and listed.

The book is well indexed and has more than 280 pages of price listings, but it's not all-inclusive. ONEAC, the maker of the ON! computer, is in the manufacturers list, but not in the index. The book certainly lists the major systems and suppliers, so perhaps it's intended to address mainstream products rather than attempt to be comprehensive. It would be a very useful book for the libraries or user groups. I'll certainly use it to answer all the queries I get from people who want to sell the computers in their closets, but I probably wouldn't buy it unless I bought and sold computers frequently.

### A Guide To Spreadsheets Using VP-Planner

**By:** Norman Sondak
**Published by:** Holden-Day Inc., Oakland, CA
**Reviewed by:** Robert D. Athey Jr.

In the tradition of computer how-to-books, this is an elementary guide to beginning spreadsheet operations. There are review questions (and answers) at the end of each chapter. The first chapter explains what a spreadsheet is, with a little history of its invention ten years ago and of subsequent developments. The second chapter deals with the system — computer, disks, printer, keyboard and the like. The third chapter covers DOS, the operating system and formatting and simple commands like DIR, CLS and so on. Really elementary!

Chapters four through twelve deal with the operations of Paperback Software's *VP-Planner* and what the commands actually do. Typically, it cites command sequences in "/QY" format, rather than showing the keystrokes separated by commas, as I would prefer (to help people get the idea that each keystroke is a command). The chapters are well organized and well written, with clear instructions what to do and figures showing what appears on the screen. A few tips and tricks are included, as well.

Sondak's treatment of the "windows" feature and of the "built-in" math functions (called "@commands") is particularly good, although his perspective is that of the experienced user. He makes the point

*continued on page 146*

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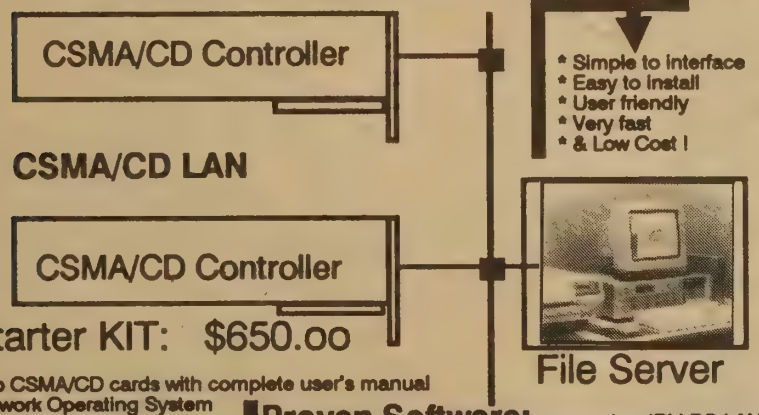


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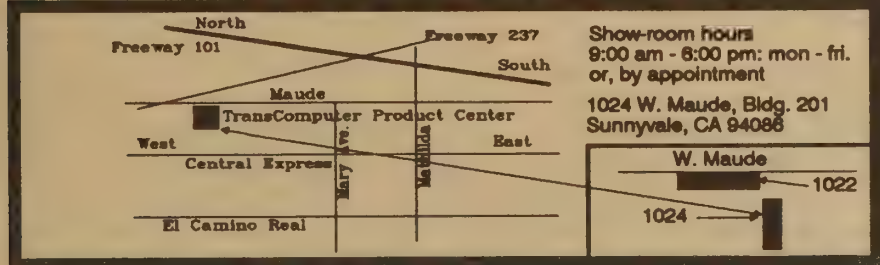


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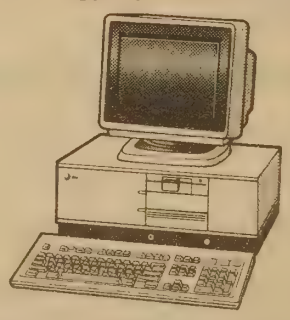

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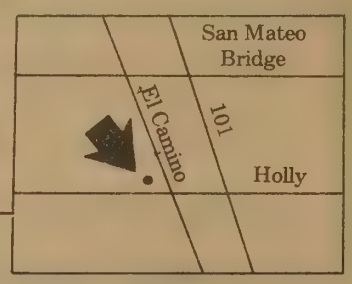


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# MAC @ WORK

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# MicroPhone II

## Better Than Ever

**By Mary Eisenhart**

Two years ago I happened to meet Dennis Brothers, author of *MicroPhone 1*, mainstay of my waking life. User feedback was probably not uppermost on his mind at the time, but, with the temerity of one who couldn't write a line of code to save her life, I charged right in anyway. "Dennis," said I, "your program would be just perfect if it just did one more thing." "What's that?" responded the long-suffering Brothers. "Let you add to an existing file," said I, being cursed with documents that frequently arrived in segments and multiple revisions. "*SMARTCOM* lets you do it. . ."

**MicroPhone supports a variety of file transfer protocols for moving text and binary files.**

You might well ask, though Brothers tactfully refrained, why I didn't just shut up and use *Smartcom*. Well, occasionally I did—at the time, *Smartcom* was a little less quirky for file transfer to non-Mac machines, and would otherwise display the occasional superior trait for a particular purpose. Probably the single factor that made *MicroPhone* my telecomm program of choice back in 1986 was its scripting function—instead of requiring you to use an arcane language to create macros for frequently-performed functions, e.g., login sequences, *MicroPhone* had a Watch Me function. You just set the Watch Me, performed the desired operation, turned off the Watch Me, and voila! your Mac performed the desired function at the click of a button. For those mornings when you couldn't remember your password, or the esoteric login procedure for a service you call once a year, this was a godsend.

The rest of the program was no slouch either. While it didn't have the ultimate-Mac icon-based interface of *Smartcom*, it was simple to use and versatile enough to handle my daily requirements of receiving stories, using online services, sending finished articles to the typesetter, downloading the occasional software and the like. It also offered text-handling features I still wish word processors would offer, such as the ability to print a selected piece of text or save it as

a separate file.

However, it appears that while I was whining to Brothers about appending to existing files, other *MicroPhone* users were also bombarding Software Ventures, *MicroPhone*'s publisher, with features *they* thought the program should have to make it Just Exactly Perfect. And Software Ventures, to its everlasting credit, seems to have listened. *MicroPhone II* represents a great enhancement of the original, offering far more power and versatility without losing its commendable ease of use.

## What's New?

My own telecommunication needs run mostly to the moving around of text files. One thing you learn by participating in conferencing systems, particularly those which, like the WELL, are heavily populated by UNIX wizards, is that other people's needs don't necessarily correspond to your own. I discovered, for instance, that whereas many users had no interest whatever in adding to an existing file, quite a few of them refused to take *MicroPhone* seriously because it didn't do proper VT100 terminal emulation, or because it didn't support protocol file transfers other than XMODEM.

Software Ventures, however, is a responsive company. The VT100 terminal emulation is now sufficiently orthodox that I can negotiate a *vi* tutorial without mishap (though with a continuing conviction that *MockWrite* is the wave of the future) and even Mac-bashing UNIX enthusiasts now admit that *MicroPhone* does a good job of being DEC in disguise.

Those who bemoaned the absence of file transfer protocols now have a choice of XMODEM and XMODEM Macbinary (useful when you want to send those formatted Mac files via an alien system, or download software), several varieties of YMODEM, and Kermit. Different protocols are in favor in different circles, and this wealth of options makes it unlikely that you'll encounter a file that *MicroPhone* refuses to handle.

## Scripting

The scripting language *MicroPhone* uses to create macros has been greatly enhanced in this new version. The Watch Me function still works admirably, but you're also able to construct your own command sequences from a menu of options. This enables you not only to edit scripts you've created with Watch Me—for instance, changing your password without generating a whole new script, or inserting waits for those pesky packet-switched calls—it also allows you to create your own scripts by linking commands. This is particularly useful in situations where Watch Me isn't too helpful—e.g., getting a not-so-smart modem to redial a busy number.

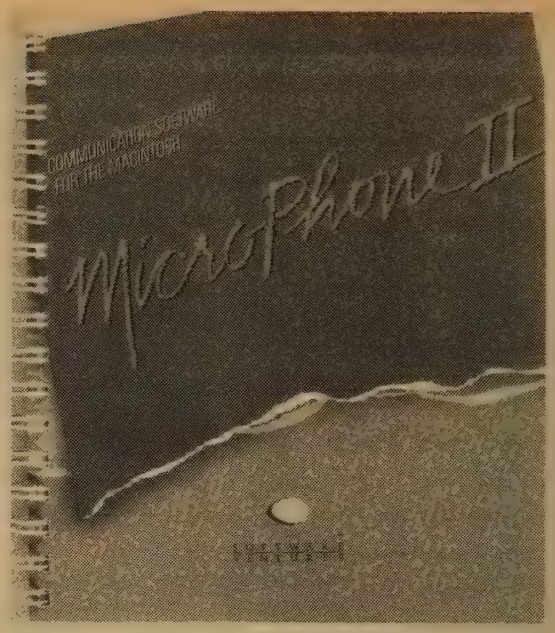
## Text Handling

As I noted earlier, *MicroPhone*'s handling of on-screen text incorporates features more word processors ought to offer. Once you've selected a portion of text, you can print it, save it as its own file, or add it to an existing file. Capture and printer functions are easily toggled on and off, and captured text can also be appended to an existing file. Furthermore, *MicroPhone* offers a Copy Table option, which interprets more than two spaces as a tab, and greatly facilitates incorporating captured material into spreadsheets and databases which tend to expect data to be separated by tabs. *MicroPhone* also includes *MicroEditor*, a desk accessory text editor which makes it easy to compose a document offline and upload it later, or simply to bypass the usually cumbersome text editor your online service offers.

## Conclusions

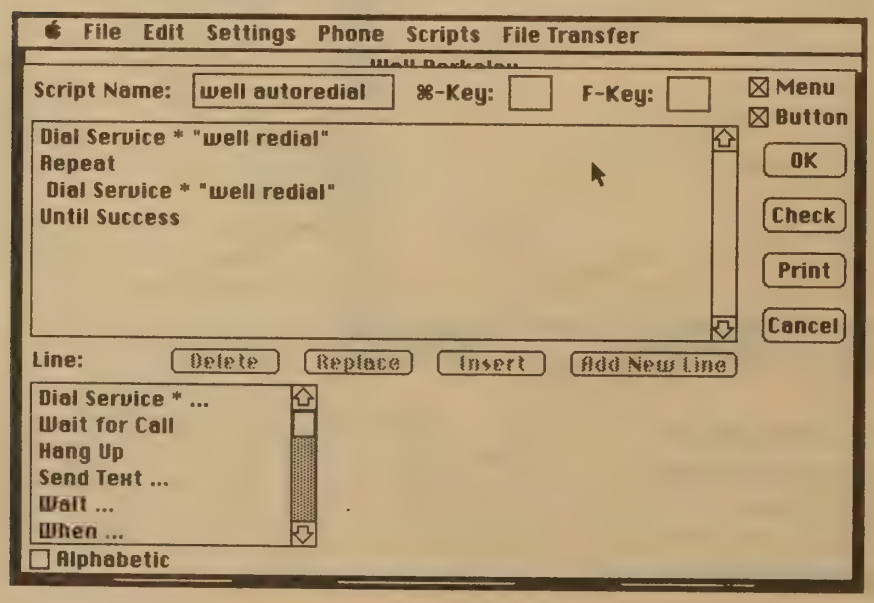
Although the new version of *MicroPhone*, at $295, is considerably more expensive than its predecessor, which carried a suggested retail of about half that much, it offers all the telecommunication features most Mac users are likely to require, whether their primary interests are conversational or technical. While at first glance the huge array of additional features may appear a little fearsome to the neophyte, I've found several novices using it effectively with very little need for hand-holding or, indeed, reading the manual (which is clear and straightforward, should you ever need it). Veteran users of *MicroPhone 1* seem to take to the new version's enhancements immediately. While you may never need many of its available options, it's pretty easy to make *MicroPhone* as simple or as sophisticated as your needs dictate (however, it should probably be noted that *MicroPhone* is not a BBS program, and if setting up a board is your main goal, you should probably look elsewhere).

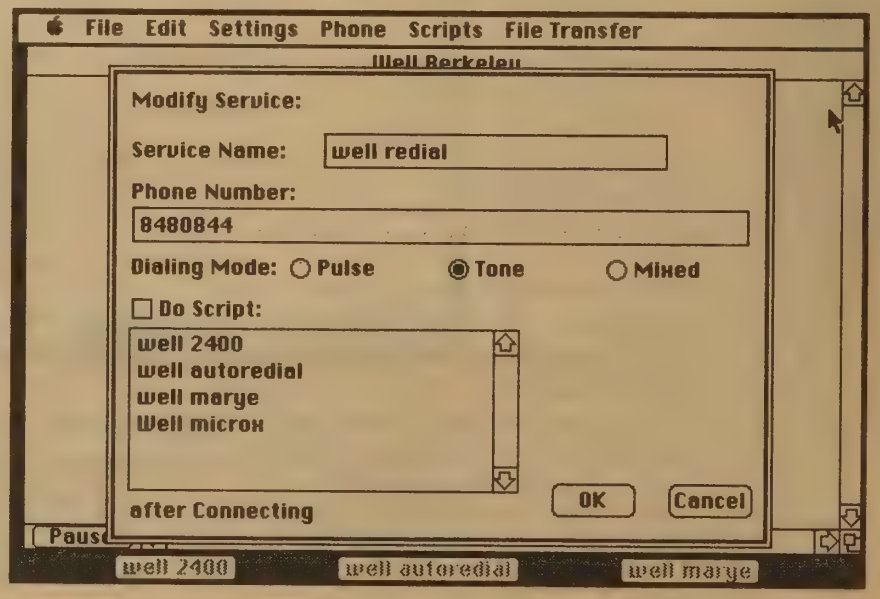
The current version is a testimonial to the general commitment to user support that characterizes Software Ventures. The company continues to listen attentively to its users. It maintains an account on The WELL (415/332-6106, id <svc>) for customer feedback, support and problem-solving, and checks in often. Both the company and the product are highly recommended. (Software Ventures Corporation, 2907 Claremont Ave., Berkeley, CA 94705. 415/644-3232.)




**MicroPhone II represents a great enhancement of the original, offering far more power and versatility without losing its commendable ease of use.**

**Getting a non-smart modem to redial a busy number: create a service to dial the number, using a dialog box; then create a script to repeat the service's operation until it connects. Thanks to Leonard Rosenthol of Software Ventures for this handy tip.**



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# MAC-PC CONNECTIVITY

BY ROBERT BEAUCHAMP

# Simplicity, Simplicity, Simplicity

## The Key To Graphics Connectivity Is To Follow Thoreau's Advice

In last month's column we related the story of Cynthia, mild-mannered DTP manager by day, connectivity guerrilla by night, and her efforts to move graphics files between the Macintosh and the PC environments.

She had tried using *WordPerfect* for the Mac and PC. While *WordPerfect* 5.0 's graphics capabilities put it head and shoulders above other high-end PC word processors, its counterpart, *WordPerfect* for the Mac, didn't measure up. The Mac version's biggest flaw, from a connectivity standpoint, is that it doesn't import those wonderful graphics files from its PC cousin.

Ever hopeful, however, Cynthia went to her favorite software store and bought another product that has both Mac and PC versions: *PageMaker* from Aldus.

To her delight she found that *PageMaker* files created on the PC will transfer to the Mac and vice versa. Her dreams had been realized. Not only could she transfer word processing, database and spreadsheet files back and forth, but now she could transfer graphics. In other words, if you paste a piece of clip art into a *PageMaker* file, transfer that file to the PC, and open it up with *PageMaker* on the PC, you will retain your graphics image.

The world of graphics and graphics file formats is convoluted, and there is a good deal of information both you and Cynthia can use to assist you in your efforts. In this month's column we'll deal with the background information you need to get started; next month we'll deal specifically with both versions of the all-time favorite desktop publishing package, *PageMaker*.

### Traffic In Graphics

Only Carl Sagan could adequately describe the number of graphics file formats in the world today. In his slow signature voice he would say, "Dozens and dozens, Cynthia, more than most of us can even comprehend. Surely, my dear, an alien intelligence would find the current situation perplexing if not totally inexplicable. Astrophysics is much easier. I recommend a change in careers."

*Copyright © 1988 by Robert Beauchamp. All Rights Reserved.* *Rob recently moved to Minneapolis and has traded his ten-speed for a pair of cross-country skis for his morning commute.*

What with PICT, TIFF, PNTG, PCX, EPSF, EPSP and many other cryptic collections of letters, confusion runs rampant. While each paint program creates its own file format, a few standards are emerging. When transferring files back and forth between the Mac and IBM worlds, it is very important to stick to these standards. The secret to successfully transferring graphics files between the PC and the Mac is to reduce the number of file formats you create to a small number of easily interchangeable formats.

The three file formats that are the most useful to the connectivity-minded person are TIFF, Tagged Image File Format, PNTG, the format created by *MacPaint,* and PostScript.

TIFF is now created by most scanners. Many paint programs in both the Mac and PC worlds allow you the option of saving a file in TIFF. A TIFF file created on the Mac can be opened on a PC application that accepts TIFF files.

PNTG is the universal Mac graphics file format. Many, if not all, Mac paint programs will save files in PNTG. Some PC applications also accept *MacPaint* files, including *PageMaker* for the PC.

You might also include PICT files in this category. PICT is the file format created by *MacDraw.* It also is accepted by a number of programs in both worlds. The reason I shy away from saving things in PICT is that PICT files imported into a PC *PageMaker* file appear as a black square and will not print from the PC.

With the introduction of programs such as *Adobe Illustrator/ Illustrator 88* and Aldus *FreeHand,* PostScript file formats have become very important. PostScript offers the highest quality graphics available.

PostScript is a language used by laser printers to create those straight lines, perfectly black solids and smooth curves. Because PostScript is slow, complex and produces a better resolution than your monitor, you cannot directly see the results of PostScript on your screen. What has been developed are two standard formats that fuse a workable screen representation to the PostScript commands you are using.

These formats are called Encapsulated Postscript, or EPS. There is one for the Macintosh, Mac EPS or EPSF, and one for the PC, IBM EPS or EPSP. Mac EPS is a combination of PostScript commands for the printer and QuickDraw commands for the screen representation. The QuickDraw commands, the language of *MacDraw*, let you create your image on the screen. IBM EPS is a combination of PostScript and TIFF. TIFF serves the same function on the PC as QuickDraw does on the Mac.

**The secret to successfully transferring graphics files between the PC and the Mac is to reduce the number of file formats you create to a small number of easily interchangeable formats.**

As you may have guessed, IBM EPS and Mac EPS are not compatible. Adobe is said to be working on a common EPS format, but for the moment we have to deal with two formats. There is also something in the works called Display PostScript which will let you see exactly what you're doing with PostScript rather than just a representation. For its first implementation, check out the NeXT workstation.

### Two Absolutely Necessary Products

You might be saying to yourself, "How am I going to get all these graphics files I use down to the two or three suggested formats? And how am I going to use Mac EPS files on the PC?" The answer to these question is *The Curator.*

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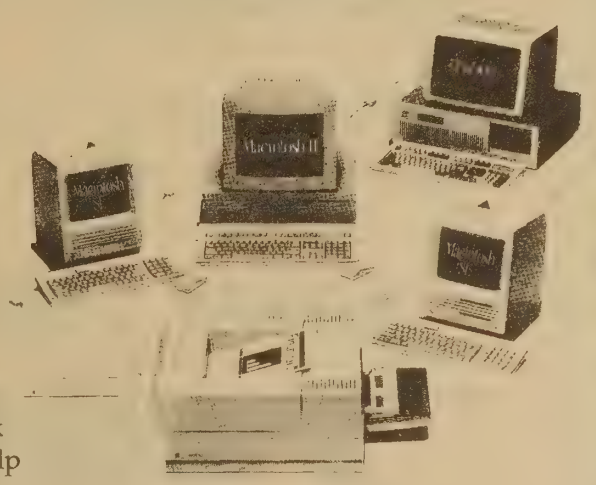

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*The Curator* from Solutions International is something everyone who uses graphics on the Macintosh should have, whether or not you have connectivity needs. If you *are* trying to move graphics back and forth, you absolutely need this piece of software.

The primary function of *The Curator* is to organize all your graphics files so you can access them easily. *The Curator* creates a thumbnail sketch of each of your graphics files. It then allows you to browse through these thumbnail sketches, seeing what is in each file without having to take the time to open it up. It also has a search function that will find those long lost files for you.

The secondary function, the one of most interest to us, is *The Curator*'s ability to save graphics files in a different format from the one in which they were created. *The Curator* will save PNTG and PICT files in TIFF and convert TIFF files to PNTG and PICT. It will also convert PNTG files into PICT and vice versa.

This isn't the whole story, however. *The Curator* also lets you convert Mac EPS files into IBM EPS files and IBM EPS into Mac EPS. You can stop applauding, now. I know it's hard to imagine, but here it is—an application that does something absolutely useful and essential and makes it easy to do. Along with converting EPS files for the different environments, *The Curator* also converts those EPS files into *MacPaint*, *MacDraw* and TIFF.

This feature makes *The Curator* absolutely essential for those who want to use EPS files created in one environment in another environment. It also emphasizes the need to use those few file formats that are easily converted.

*The Curator* works as either a desk accessory or as an independent application within MultiFinder. This makes it extremely easy to find a graphic while you're in the midst of an application. If you need to import a graphic into a *PageMaker* file, just access your Apple Menu, browse through your clip art library, choose your file and place it in your document. All without leaving *PageMaker*.

The other absolutely essential product you need is *Scrapbook Plus* from T/Maker. *Scrapbook Plus* runs in the Microsoft *Windows* 2.03 and *Windows 386* graphical environments. It takes advantage of all of *Windows*' multitasking capabilities and graphics features. As a matter of fact it is one of the few products around that really works well in *Windows*. This is a product that *Windows* users will want even if they don't have to transfer files back and forth.

Like *The Curator*, *Scrapbook Plus* is used to keep track of your files, though unlike *The Curator* it only makes thumbnails of those files actually located in the scrapbook.

*Scrapbook Plus* imports TIFF and IBM EPS files, among others. While it is not as versatile in the area of conversion, it does let you convert EPS files into TIFF. *Scrapbook Plus* will not convert IBM EPS files into Mac EPS Files or convert EPS files into any format other than TIFF.

This is usually not a problem, however. Since *Scrapbook Plus* is a scrapbook, all you have to do is paste your file into whatever paint application you have that will run under *Windows*. Two of the more popular ones are *Windows Paint* and *PC Paintbrush*.

It really all comes together when you learn that *PageMaker* for the PC runs under *Windows*. You can use *Scrapbook Plus* and PC *PageMaker* with as much ease as you enjoy with *The Curator* and Mac *PageMaker*. You can imagine how excited Cynthia is at this point.

## Clip Art Extraordinaire

There are a couple of points that the newly initiated Clip Art Converter should know. All the graphics we've been discussing so far are in black and white. Color is a whole other can of worms. Also, if you convert an EPS file into TIFF or other format, it loses its "PostScriptness" and is simply another bit-mapped image.

In the confusing area of graphics formats and connectivity, the simple rule to follow is "use EPS when you can; if you can't use EPS, use TIFF." By sticking to these formats you'll make your life a lot simpler.

If you're looking for some high quality EPS images, *Cliptures* from Dream Maker is an excellent series of EPS files for the Mac. T/Maker has an extensive collection of high quality EPS clip art for both the Mac and the PC under the *ClickArt* name.

## Resources

**Solutions International**
P.O. Box 989
29 Main Street
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**T/Maker Company**
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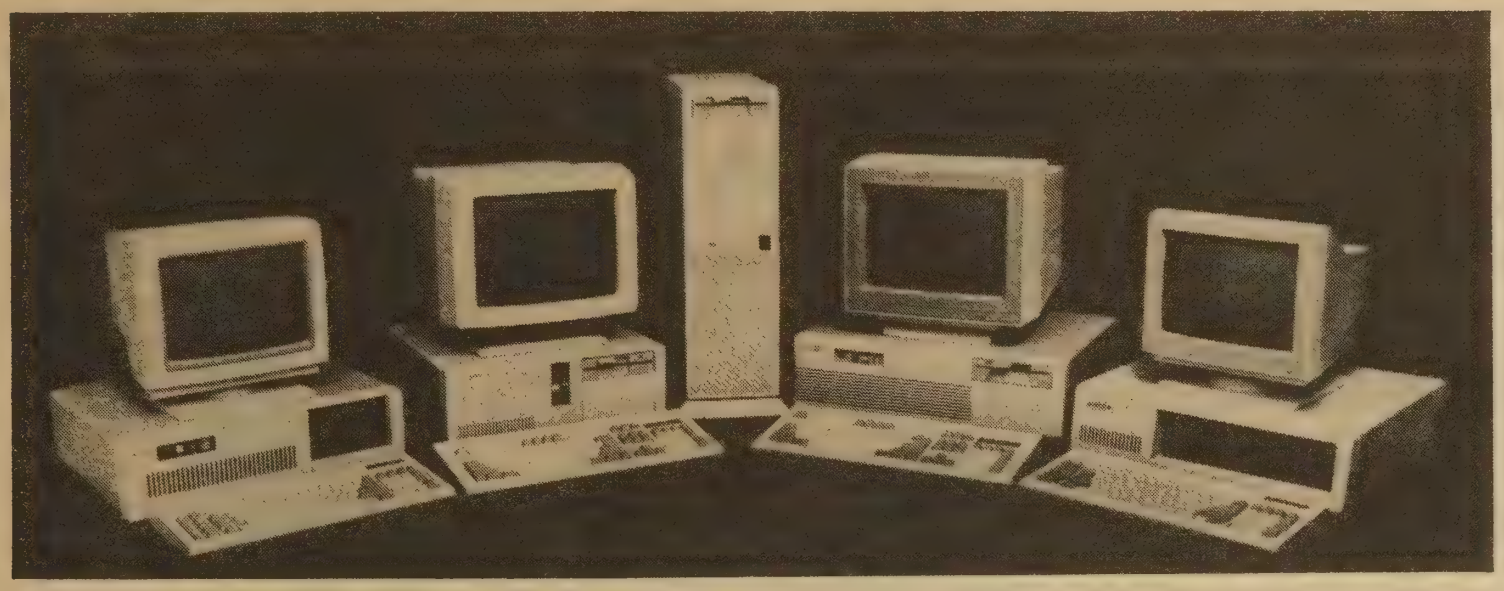

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Booth 424 COMDEX/Fall '88

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# "WHAT'S GOING ON IN PARIS?"

## Business Maps and Travel Info In HyperCard

*HyperCard* is the ideal way to connect business information and maps. This month we examine three packages: *Business Class* and *City To City* from TenPoint0, and *HyperAtlas* from MicroMaps, Inc.

TenPoint0 used to be Activision before some brain fever made them change their name generally to Mediagenic and (for *HyperCard* products) to TenPoint0. Do not let their visit to the Ministry of Silly Names distract you: *Business Class* and *City To City* are first class. Each program gives you useful information about different areas of the world.

*Business Class* opens with a screen that shows you which parts of the world are in daylight and dark right now. That information is updated each time you go to the screen. From this screen you can go via regional maps to any of the program's 65 listed countries.

Last year I had to go to Argentina on three days' notice. *Business Class* would have paid for itself on that occasion alone. It is hard to describe all the things you *don't* know about other countries. If I had had the stack, I would have known about Buenos Aires' 80 degree January weather—"weather and climate" is one of the thirteen kinds of information you get. We spent some hours searching for information about electrical connections in Argentina—if you don't know that, you can't buy adaptors to power or recharge equipment you take with you. *Business Class* not only tells you about the voltage and frequency used, it shows you a picture of the typical connector. Without that information you have to buy every available adaptor (as we did).

For each country you also get information on currency (with a built-in conversion calculator), telephones, hotels, air and ground travel, emergency numbers, local time zones, national holidays and social customs, postal rates, visas and other documents you need to enter or exit.

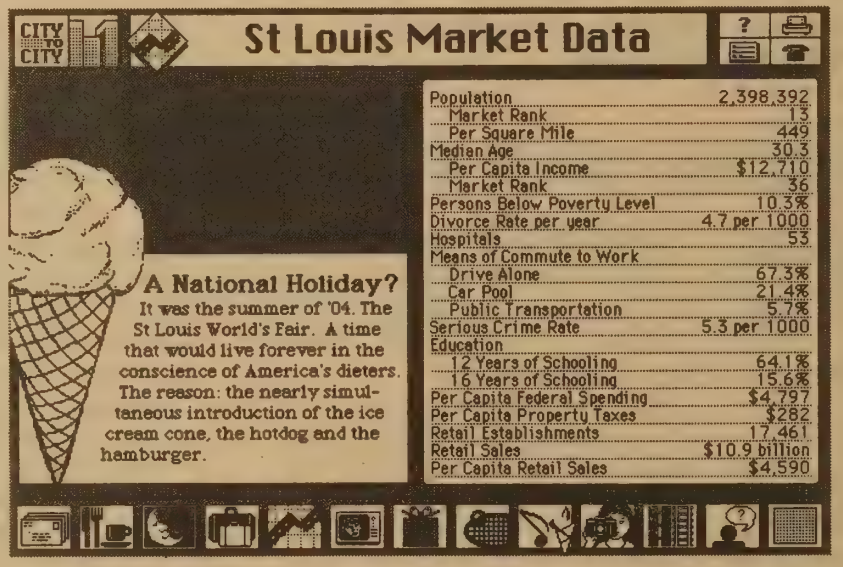
You can design itineraries that go through various countries, and *Business Class* will print out the information cards for the countries you will visit, as well as the itinerary itself. You don't have to have your Mac along to get the advantages of the program.

### City To City

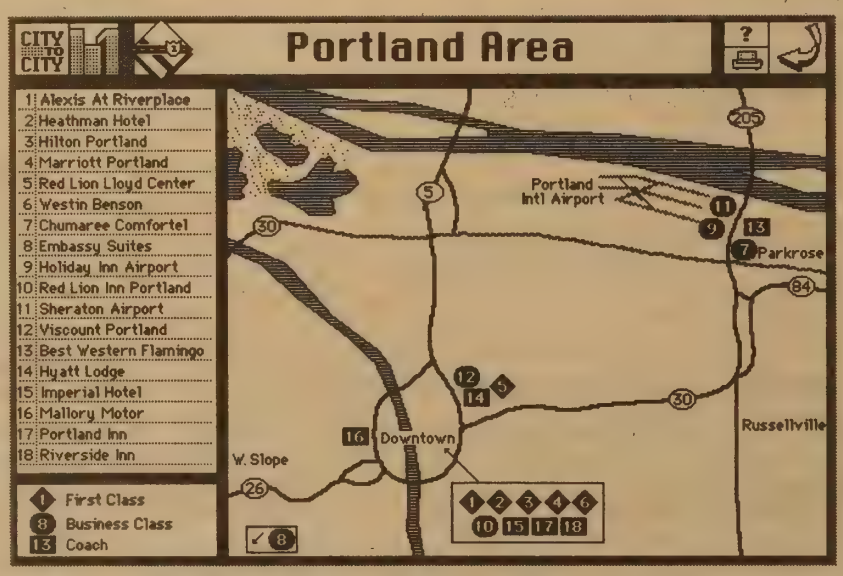
TenPoint0's second offering is *City To City*. It gives you information about 30 major US cities. You can browse through the cities, or go directly to specific information you need.

If you have just heard that you must be in Seattle tomorrow, what are you going to do? You need hotel information, a restaurant for a major lunch. If there's time, you would like to catch a ball game. If you have *City To City*, you go to the Seattle cards, and there is a blurb about the "feeling" of Seattle. There are a

City to City provides business (and pleasure) travel information for 30 US cities.


CITY TO CITY
St Louis Market Data
A National Holiday?
It was the summer of '04. The St Louis World's Fair. A time that would live forever in the conscience of America's dieters. The reason: the nearly simultaneous introduction of the ice cream cone, the hotdog and the hamburger.
Population 2,398,392
Market Rank 13
Per Square Mile 449
Median Age 30.3
Per Capita Income $12,710
Market Rank 36
Persons Below Poverty Level 10.3%
Divorce Rate per year 4.7 per 1000
Hospitals 53
Means of Commute to Work
Drive Alone 67.3%
Car Pool 21.4%
Public Transportation 5.7%
Serious Crime Rate 5.3 per 1000
Education
12 Years of Schooling 64.1%
16 Years of Schooling 15.6%
Per Capita Federal Spending $4,797
Per Capita Property Taxes $282
Retail Establishments 17,461
Retail Sales $10.9 billion
Per Capita Retail Sales $4,590

For each city, City to City provides market and demographic information.




City to City uses HyperCard's graphics to show you city maps .

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number of buttons that lead to classes of information. The hotel buttons lead to listings for 18 Seattle hotels, with addresses, phone numbers and prices. There is room to add listings of your own here, as in all of the information cards for both programs. Another button leads to restaurant listings. A third tells you how to call the Seattle Seahawks. You could also find out about nightlife, shopping and tourist sights.

Not all the program's information is about your pleasures while traveling. There are excellent backgrounders on the local media and business support services. The Market Data card gives you census and sales demographics for the city. Visitor Information tells you how to get emergency and medical help. You get a city map and local transportation numbers to call for taxi, bus and air travel.

*City To City* has a very rich itinerary facility. I made up one for the TV character Alf. I was able to design a three-day trip, including lodging, restaurants and air travel. I was able to make up a "Personal Preferences" file for him that specified he is inclined to eat cats, and to sit in the non-smoking section of an aircraft. I could step through the listed resources in the stack, select them and move them to the itinerary. At the end, I could print out a complete itinerary for Alf to take along. The itinerary facility alone might be sold as a separate piece of stackware—but it is bundled with the program.

You will need to be sure that the information in the program is kept current, but that is true of any information file. If you have a Mac-based business with travelers, you must get *City To City*. It will quickly pay for itself. As you create preference lists for each traveler, it will become indispensable. If you have international travelers, get *Business Class* as well. You won't regret it.

*Business Class*
*City To City*
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Mountain View, CA 94039
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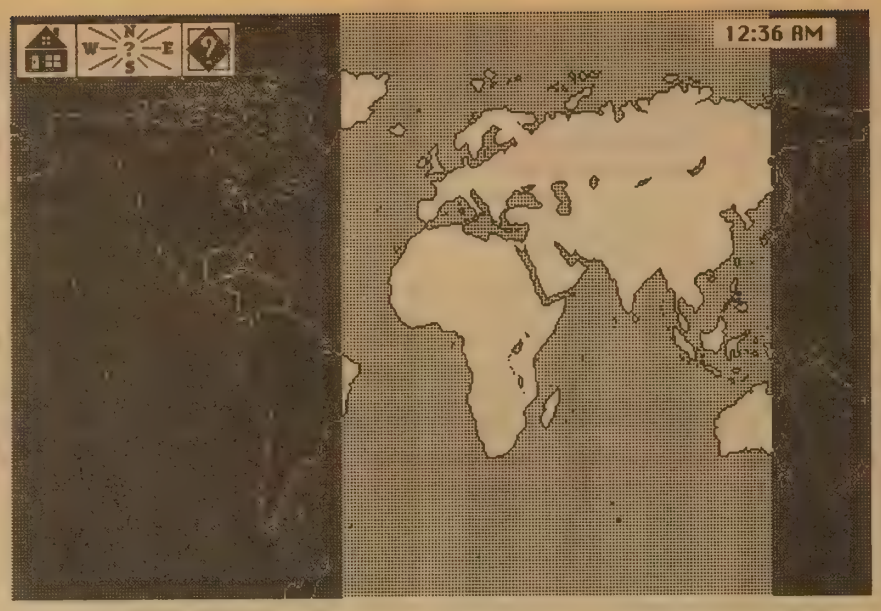
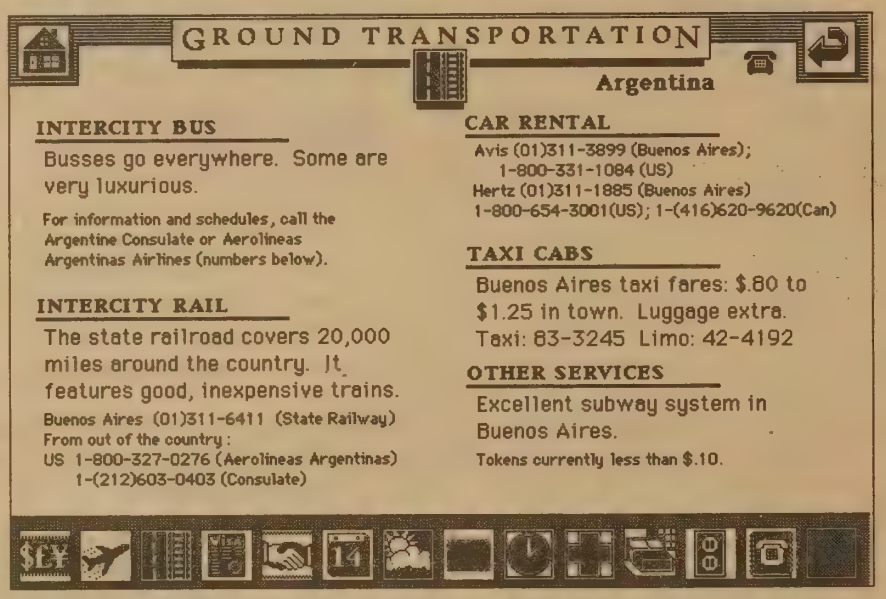



**Business Class' Opening Screen shows day and night at a glance, around the world.**

**Country Maps in Business Class lead to detailed information.**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## HyperAtlas

Maybe you need to create your own database and link it to maps. If you run a business with contacts or branches in many different places, you will want a way to organize information about those places. *HyperAtlas* provides the tools.

This product supplies you with maps of countries of the world and states of the union. Linked to those maps are some rather rudimentary political, economic and population information stacks. You may be surprised that I would recommend a product which does not include the wealth of data included with *Business Class* and *City To City*. *HyperAtlas* is a tool kit to allow you to build your own information stacks and link them with maps which are provided.

Each state map, for instance, includes county lines. You can be extremely specific with the buttons you create, linking your business data with counties and cities inside a state. You also receive stacks which will automate the importation of data into your stacks. You can make up a tab delimited data file and import the information into a *HyperAtlas* stack with one of the data import stacks.

If you want to standardize maps throughout your company, you can use *HyperAtlas* to do so. You can then have all the offices or departments of your organization using compatible maps, which will allow you to combine or separate data more easily.

Two caveats: if you plan to use *HyperAtlas* to design a complex data stack, you will have some work ahead. It is no fault of the product—this is a tool-kit for making a geographical database, not a finished product. The second warning is this: you must license the maps from *MicroMaps* if you want to distribute them with your stack. Before you invest a lot of love in a project, you had better talk to them about your license.

*HyperAtlas*
$99.00
from:
MicroMaps Software Inc.
PO Box 757
Lambertville, NJ 08530
(609) 397-1611

## Feedback

You can leave messages, comments, praise and blame for stackware and *HyperCard* on the WELL (415-332-6106; user ID "birrell") or CompuServe (User ID 72466,3567) or by US Mail to:

Birrell Walsh
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**Diamond Scan 14**
800 x 600 pixels (digital, analog, monochrome)
330 x 500 pixels (composite NTSC)

Actual unretouched screen images

## Auto-tracking, VGA or EGA compatible monitors

Whatever your resolution requirements, Mitsubishi Electronics has the right monitor at the right price.

When it comes to auto-tracking versatility, the Mitsubishi® Diamond Scan family of 14″, 16″ and 20″ monitors is the most extensive and reliable in the business. For monitor size, horizontal scan frequency, compatibility or resolution, Mitsubishi offers you greater variety than any other manufacturer.

Mitsubishi's Diamond Scan 16 L and Diamond Scan 20 L feature the first microprocessor-based digital scan mode control memory which gives optimum image quality across the widest operating frequency range in the industry, 30 to 64 kHz.

For the 14″ and 20″ size classes, the Diamond Scan 14 and Diamond Scan 20 A raise the standards in high performance color monitors for the 15 to 36 kHz frequency range.

For fixed frequency VGA compatibility, it's the XC1429C for eye-opening color graphics. Unlike the competition, Mitsubishi gives you the best of both worlds in VGA—size of 14″—not 12″—plus resolution of 0.28 mm fine dot pitch—not 0.31 mm or stripe. At a competitive price.

The XC1410C and XC1430C are dual-frequency EGA/CGA monitors that make your color graphs and charts more vivid, along with crisp, easy-to-read text.

| Mitsubishi Model | Screen Size (inches) | Horizontal Scan Frequency (kHz) | Mask Pitch (mm) | Compatibility/Resolution | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | VGA | | | | |
| | | | | NTSC | CGA | EGA | Std. | Ext. | Apple Mac II | 1024 x 768 (48 kHz) | 1280 x 1024 (64 kHz) |
| Diamond Scan 14 (AUM1381A) | 14/13V | 15.7 ~ 36 auto-tracking | 0.31 | • | • | • | • | • | • | | |
| Diamond Scan 16 L* (HL6605ATK) | 16/15V | 30 ~ 64 auto-tracking | 0.31 | | | | • | • | • | • | • |
| Diamond Scan 20 A (HA3905ADK) | 20/19V | 15.7 ~ 36 auto-tracking | 0.31 | | • | • | • | • | • | | |
| Diamond Scan 20 L* (HL6905TK) | 20/19V | 30 ~ 64 auto-tracking | 0.31 | | | | • | • | • | • | • |
| XC1429C | 14/13V | 31.5 | 0.28 | | | | • | | | | |
| XC1410C | 14/13V | 22 or 15.75 | 0.40 | | • | • | | | | | |
| XC1430C | 14/13V | 22 or 15.75 | 0.31 | | • | • | | | | | |

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# BMUG

BY DAVID MORGENSTERN

# Price Increases, Viruses, Slipped Disks And Other Plagues

Welcome to the fifth BMUG column. We're going to focus on disk drives this month—**floppy drive** and disk information and tips. A good drive always includes at least one detour, so buckle up and step on the gas!

## MacTurkeyFest

The weekly BMUG main meeting is always a fun roller-coaster ride into Macintosh Land, but sometimes it can get even better. Every October we have a day-long Macintosh festival on the University of California campus, the *MacToberFest*, where everyone does a Mac show-and-tell with the software they use. Software developers around the Bay Area come and show their latest efforts. There's a raffle and lots of goodies, including a drawing for a Macintosh!

Unfortunately, we couldn't get a hall in October, so this year we will have a *MacTurkeyFest* on Thursday, November 17. The main meeting following the Fest is always a special show. Last year Bill Atkinson showed *HyperCard*. This year's guest is a secret, so come and be surprised!

**DISKTIP**

**If you buy bulk single-sided disks and format them as 800K disks, you may find some of them won't make the jump to the extra storage. They will work fine as 400K disks. The regular 400K initialization is not *HFS* (Hierarchical Filing System). Folders will appear on the desktop, but not in *Open* dialogue boxes. If you want your folders to be real HFS folders on a 400K disk, hold down the Option key when clicking the 400K button in the disk initialize dialogue box.**

## It's A Bird? Plane? No, It's SuperDrive!

Well, the Apple marketing folks have done it again, with a clever and sexy name for their new 1.44Mb floppy drive—the FDHD™, Floppy Drive High Density. The **FDHD** (pronounced Fud—Hud) is also known as the **SuperDrive.** Before you frantically run to your neighborhood dealer, let's look at what's super about the drive.

- **More storage.** This will make backing up your hard disk easier. Users will still require a hard disk to get anything done. The 1.44 meg disks are a lot more expensive than the bulk 400/800Kb disks we're now purchasing.
- **Compatibility.** The SuperDrive can read MS-DOS and PS/2 disks as well as 800K Macintosh disks. Apple claims that it can also read the old 400K disks, but it couldn't at the introductory press conference. At the moment, the SuperDrive can only be used on a Mac II or Mac IIx, not on an SE or Plus.
- **Ease of Use.** Although the SuperDrive can read other formatted disks, it can't mount them in the Finder. The only way to get to your MS—DOS files is through the *Apple File Exchange* program. The *DaynaFile* by Dayna Communications lets the Mac read the PC disk directly.

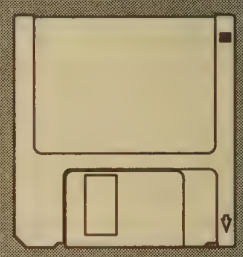
The FDHD was announced as a part of the souped-up Mac IIx. This new product has a bunch of new ROM chips and co-processors. The drive will only work on the Mac II at the moment. The $595 *SuperDrive* upgrade includes the drive, SWIM chip (Super Wozniak Integrated Machine) and new "revision B" ROMs. Let's get to the store early and beat the lines.

## Finding The Bottom Line

You can imagine the howls of outrage at the Apple price hikes announced in late September. It was even better than the spontaneous demonstrations that broke out when Apple sued Microsoft.

All the newspeak from Apple was gone over in detail at the BMUG meeting. It was very clear which members had debate training—they took Apple's side for the discussion. Several Apple sales representatives reported that they heard the news with everyone else. No advance warning to the troops in the trenches. Were they pissed off!

**DISKTIP**



**If that very important disk has a very loose metal shutter—don't run the risk of the shutter coming off in the drive. That would be bad ($$$). Instead, pull the shutter off the disk and carefully stick it in the drive. Now you can copy the contents onto a new disk.**

The software retailers in the audience were afraid of a sales slump. New users will spend all their bucks on hardware and there won't be silver left over to fill a shopping bag with programs. Software developers and retailers have been riding the Business Machine Gravy Train for a year anyway. When a machine or program becomes business-worthy, the price skyrockets.

In the news release announcing the price hike, Apple blames the price increases on increasing "component costs and changing global market conditions." Charles M. Boesenberg, Apple USA senior vice president of sales and marketing, said, "Industry developments have prompted Apple to reprice some of our products so they are more in line with **today's market realities.**" Translation: Apple is in the business to make a buck.

Perhaps it is a mark of the Macintosh user that we cheerfully swallow the marketing lines cooked up in the advertising agency's think-tank. Even the great kings and sages have confused the message with the messenger. The price hike can stink, Apple management can stink and market realities can stink. But the spirit of "a computer for the rest of us" is still alive and well at BMUG.

## The Pro's Nose

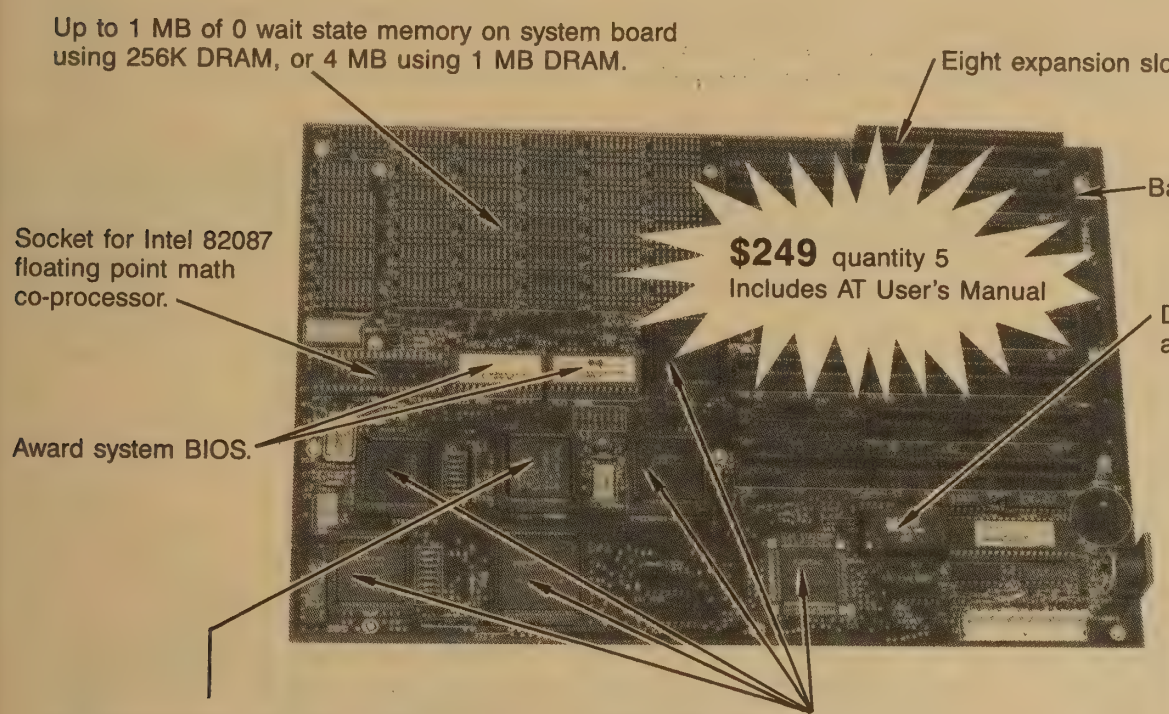
Have you ever met a Macintosh pro? What separates them from the rest of humanity? Is it their bloodshot eyes from staying up all night to win the latest game? Or their hyperextended fingers from overuse of menu equivalents? No. It's their knowing little weird things about programs.

*Copyright © 1988 by David Morgenstern.* *David Morgenstern is a Bay Area "MacNurturer" and BMUG member. David is DMORGENSTERN on GEnie and himself at (415) 641-7352.*

# Easy Money . . . with EasyData

Make more money with EasyData's 12 MHz 80286 AT* products. The EasyData SB-212 System Board is priced to make it easy for you to sell . . . yet without sacrificing features, performance, or reliability. Customers will like *your prices* whether you are building a new system or upgrading an existing computer. The SB-212 System Board even matches accelerator boards in price, but with the performance advantages of 16-bit architecture throughout.

The SB-212 is compatible with PC-DOS*, MS-DOS*, OS-2*, and Xenix*. It's also available integrated into EasyData's Model 212 AT System.


Up to 1 MB of 0 wait state memory on system board using 256K DRAM, or 4 MB using 1 MB DRAM.
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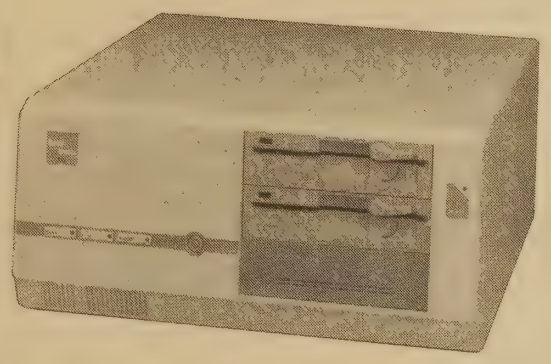
Suntac Bi-CMOS LSI chip set reduces chip count, for lower power consumption and greater reliability.



*Other EasyData products*

80386 systems:

- **EasyData SB-316** 16 MHz **System Board**
- **EasyData 316** 16 MHz **Desktop System**
- **EasyData SB-320** 20 MHz **System Board**
- **EasyData 320** 20 MHz **Desktop System**

2400 baud modems (sync/async/autoanswer/autodial):

- **EasyData 2400H Internal Modem** $79.95 (quantity 5)
- **EasyData 2400D External Modem** $89.95 (quantity 5)

*See all the EasyData products at Comdex, West Hall, booth 261.*

**EasyData 212/210 Desktop Systems include:**

— EasyData SB-212/SB-210 System Board.
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— Hard/floppy disk controller: supports two hard and two floppy drives.
— 1.2 MB floppy drive.
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— 101-key enhanced keyboard.
— Spiral-bound AT User's Manual.
— Heavy-duty packaging.

**EasyData 212** (12 MHz) **$885,** quantity 5
**EasyData 210** (10 MHz) **$849,** quantity 5

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This column will reveal the secrets of the Pros and let you shine for your boss and co-workers. If someone questions your bona fides (since you've just had your Mac for a few months and wouldn't have had access to beta copies of certain programs or hardware), pick a common name, John or Steve, and say, "I saw it at John's." This will work 100% of the time—guaranteed.

Inside the new Apple FaxModem™ is a little 32K ROM (read only memory) chip. The software that the modem needs is on 24K of the chip—the rest is a little fun present for the users from the software designers. If you push the power button three times and hold it in on the third, you will hear the names of the software team. The modem plays a small, very low quality, "Peter—Allen—Neil."

## Calamine Lotion Won't Help!

Viruses are still in the news. Remember that using a Laser Parlor can be hazardous to your computing health. Some parlors and copy centers are not bothering to clean their hard-drives of viruses, since they will be reinfected throughout the day. Many people that use the parlors don't even know they are infected. They are 21st century computer plague rats, their disks silicon fleas, spreading disease. When was the last time you backed up your hard disk and ran a blood test?

## Downwind From Animal Magnetism

With all the software bugs, viruses and bombs, we can forget that there are many physical forces that can cause computer problems. Disks and drives are especially vulnerable to the forces of nature.

Disks are very susceptible to magnetic damage. Apple has very thoughtfully provided two sources of magnetism to corrupt your data.

The Mac itself is the first culprit. An electromagnetic field extends out of the left side of the Macintosh (128K—SE). Don't put your external drive on that side of the case or store a box of disks there.

The ImageWriter printer has also been implicated in some disk damage. The front cover of the printer has a little black magnet stuck on it. It's on the plastic tab in the lower right hand corner of the cover. It tells the ImageWriter that the cover is on. You take the cover off to adjust the paper (an all-too-frequent occurrence with the ImageWriter II—we'll have a printer column soon) and put the cover on your work area. Perhaps on top of some disks? Keep that magnet away from your data!

## Oh, My Slipped Disk!

Has a disk ever refused to come out of your drive? This always seems to happen when you're in a hurry or during the early hours of the morning.

Usually the problem is the buildup of prehistoric labels on the face of the disk. The disk went in easily enough, but the extra girth hangs it up on eject and it reinserts itself. Sometimes you can grab it with your fingers right when the disk starts to go back in the drive. Small children-sized fingers are especially good at this. Other times you may have to find a paper clip, straighten it out and stick it in the small hole on the lower right hand side of the drive. This pushes a lever inside the drive and pushes the disk out.

Sometimes these same actions can damage your floppy drive. Keep the following in mind when using or playing doctor on your drive.

• **Never force a disk out of your drive.** If you can grasp the stuck disk, give it a light tug. If it doesn't come out easily, do not apply more force. Sometimes the upper read/write head is snagged on the metal shutter (that's the metal part of the disk that opens when the disk is inserted in the drive). If you bend the head's mounting foil, the drive will have to be replaced. $$$.

• **Never force a disk into your drive.** There's a problem with the dark blue or black disks—sometimes you can't see them in the drive. Drives have been broken by users pushing on an already mounted disk in the drive. "Why [*push* ] isn't this disk [*push* ] going into the drive? [*push.*]" $$$. Light-colored wraparound labels can help you avoid this situation.

• **Never force the paper clip.** The paper clip in the hole uses the inject/insert lever inside the drive. When you eject the disk in software, the same lever is used by the disk. Bearing down with a paper clip can bend the lever like a noodle. If this happens, the drive will have to be replaced. $$$.

## Disk Allergies

Disks and disk drives are allergic to house dust and animal hair. It's true. Move your Mac into the light (or go get the flashlight) and look in the drive.

If the drive is empty you should be able to see along the metal disk guides on each side. The drive should be clear of dust. If you see dust, blow it out with some compressed air. Be sure to cover your keyboard and printer first.

The clear soft plastic slip covers the disks come with are also bad for your disks. They trap dust and cookie crumbs and press them around the shutter. The plastic covers have also ruined disks with static


ONE OF THE MOST IMPORTANT MACINTOSH APPLICATIONS YOU'LL EVER USE.

It's your application to attend the 1988 Macintosh Business Conference & Exposition, to be held November 1–3 at the Disneyland Hotel in Anaheim, California.

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- Macintosh Data Bases
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**Applications in Focus**
MBC&E also offers a range of half-day Professional Tutorials and full-day Executive Seminars. Each is led by a leader in the field and includes admission to the three-day Conference and Exhibits. Sign up now; space for all of these sessions is extremely limited.

electricity. Throw them out after you buy your disks!

Dust can cause all kinds of trouble: misreads and -writes, improper disk seating and speed problems. Dust in the drive may be more of a problem with Macs with fans.

## It's What's Inside That Counts

There are times when you might want to swap an 800K drive in or out of your Macintosh. Perhaps your internal drive is kaput and you have an external drive to replace it. You may have just bought one of the new small internal hard disks and now have room for two internal floppy drives and a hard disk. Whatever!

All the 800K drives Apple uses with Macs are functionally the same. Some drive mechanisms may **appear** different, but this is due to manufacturing changes or Apple buying similar parts from different sources.

Sometimes users have trouble with the swap. When the power is turned on, the drive continuously tries to eject a disk, even if the drive is empty. What's going on?

Sony, which makes the drives for Apple, made a design change which resulted in two different cable pinouts for 800K drives. The cables used inside computers are a lot different from the sturdy external cables. The internal cables are usually flat, wide "ribbon" cables. Each little wire is separate and identified by number. This is a very good thing, because to fix the drive problem we have to **cut** some wires. Horrors!

How can you tell which cable is the problem one? It's hard to be totally sure from a visual inspection. Some have red or black lettering and others have a yellow wire on the side. Jerry at CJS Systems says that the best test is to see if the drive acts up—then you know for sure. Smart thinking. The two wires that need cutting are #9 and #20.

## Etc.

BMUG has one of the most up-to-date, comprehensive software libraries around, with 250+ double-sided disks filled with the latest versions of public domain or shareware programs and *HyperCard* stacks. New disks are unveiled almost every week at the Thursday general meeting.

Our BBS offers the latest versions of files in our software library, as well as news, private mail, rumors, etc. The BMUG BBS is part of the worldwide EchoMac Network on FIDOnet; by calling a local FIDOnet BBS in your area, you would then be able to get in touch with us wherever you are, as well as send mail to users everywhere! BMUG is also now a part of the international USENET network. With our multi-line capability you are now be able to have access to BMUG almost 24 hours a day. It's easy to use, fun and a great resource.

## Upcoming Events

**October 27:** Computer Friends (Video Scanner) & Abacus Concepts *StatView*.
**November 3:** Coda *Finale* (Music Software).
**November 10:** Informix *Wingsz* (Spreadsheet).
**November 17: BMUG's MacTurkeyFest** (previously, MactoberFest).
**November 24:** National TurkeyFest. **No Meeting!**
**December 1:** Artificial Intelligence night & Human Intellect Systems.

BMUG has many great Special Interest Groups (SIGs). They're a great way to meet people doing or trying to do the same things you are. They include the Alpha/Beta SIGs (for new users and not-so new users), Desktop Publishing, Computer-Aided Design, HyperCard, Music, Professional Users, Programmers, Telecommunications, A/UX, Database Developers and more.

You can reach BMUG at any of the following numbers:
849-HELP (Help Line) • 549-2684 (Business Office) • 849-9114 (Announcements/Meeting Schedule).

## What is BMUG?

Good question. BMUG is an educational nonprofit corporation promoting the exchange of information. Like any growing organization it is many different things to its 5000+ international membership.

BMUG, Inc. is a computer user group located in Berkeley, California. The group specializes in computers using a graphic interface. For a while that meant the Macintosh™ but now includes other makes, models and operating systems. BMUG supports many Special Interest Groups (SIGs), a five-line BBS, help-line, software library, weekly meetings and much more. BMUG also puts out a semi-annual 350-page book that we call our "newsletter." Our motto continues to be: *We're in the business of giving away information.*

Come and join in the dialogue every Thursday evening, 6:00 - 9:00 (or whenever we finish), in the Physical Sciences Lecture Hall on the U. C. campus.

The BMUG Help Line, (415) 849-HELP, provides technical assistance and telephonic handholding during business hours (9:00 am - 6:00 pm). If your question can't be answered on the spot, we try get you in touch with someone that can help. Of course, not every problem can have a happy ending—but we try.


# APPLICATION AND REGISTRATION FORM

Advance Registration Deadline is October 21, 1988

THE 1988 MACINTOSH BUSINESS CONFERENCE & EXPOSITION

**1. Please print the correct information here:**

Name (FIRST OR INITIALS / LAST)
Position/ Telephone (AREA CODE / NUMBER)
Company/ Organization
Business Address (DEPT OR M/S)
City/State/ Zip Code (STATE / ZIP CODE)

**2. MBC&E HALF-DAY PROFESSIONAL TUTORIALS**

**Macintosh in Corporate A/V Production**
**(Nov. 2; 8:00 - 12:00. Code: PT-1)**
From storyboarding to finshed product: incorporating mixed media to create first-class training and marketing tools.

**Macintosh in Accounting & Finance**
**(Nov. 2; 1:00 - 5:00. Code: PT-2)**
Bookkeeping, invoicing, purchasing, financial analysis, inventory control and office compatibility issues.

**Macintosh in Admin. & Management**
**(Nov. 3, 8:00 - 12:00. Code: PT-3)**
Business planning, project tracking, personnel and resource management. For managers in all business areas.

**Macintosh in Sales & Marketing**
**(Nov. 3, 1:00 - 5:00. Code: PT-4)**
Client/prospect tracking, contact prioritizing, report generation and analysis: in short, how to use Macintosh to make the sale.

**The MBC&E Hands On Business Software Series**
Professional, four-hour hands-on tutorials, led by experienced workshop leaders. Learn how to become a "power" user of the top-selling Macintosh packages. (The Macintosh Overview is designed for newcomers to Macintosh technology. Other sessions assume some familiarity with Macintosh; they are designed for beginning to intermediate users of these packages, except where noted.)

**PT-5** Macintosh Overview (11/1; 8:00)
**PT-6** Hands On *Excel* (11/1; 8:00)
**PT-7** Hands On *Microsoft Works* (11/1; 1:00)
**PT-8** Hands On *HyperCard* (11/1; 1:00)
**PT-9** Macintosh Overview (11/2; 8:00)
**PT-10** Hands On *Excel* (for intermediate to adv. users; 11/2; 8:00)
**PT-11** Hands On *HyperCard* (for intermediate to adv.; 11/2; 1:00)
**PT-12** Hands On *MacDraw* (11/2; 1:00)
**PT-13** Hands On *PageMaker* (11/3; 8:00)
**PT-14** Hands On *Cricket Presents* (11/3; 8:00)
**PT-15** Hands On *Adobe Illustrator* (11/3; 1:00)
**PT-16** Hands On *MacProject II* (11/3; 1:00)

**3. FULL-DAY EXECUTIVE SEMINARS**

**The Power Macintosh Office: A Complete, No-Nonsense Guide**
**(Repeated Nov.1 & 2; 8:00 - 3:30. Code: ES-1 and ES-2)**
Hardware configurations, networking; E-mail, training, software and security issues: Everything you need to know to launch and administrate the Power Macintosh Office. Why learn important lessons and strategies the hard way? This Executive Seminar can save months of indecision and thousands of dollars for your business.

**The MIS/DP Connectivity Round-table**
**(Nov. 3; 8:00 - 3:30. Code: ES-3)**
Making Macintosh work with an existing corporate DP/MIS environment: an interactive lecture/demonstration. Connectivity issues, prototyping, HyperCard as dashboard: this Seminar will help you seamlessly integrate Macintosh with your current MIS/DP structure.

**4. TICKET OPTIONS**
**Choose one of the following:**

| | Reg. Price | Advance Discount Price |
|---|---|---|
| **A. Full-Day Executive Seminars** | | |
| ☐ ES-1 Power Macintosh Office - 11/1, 8:00 AM | $495* | $395* |
| ☐ ES-2 Power Macintosh Office - 11/2, 8:00 | $495* | $395* |
| ☐ ES-3 MIS/DP Roundtable - 11/3, 8:00 | $495* | $395* |
| **B. Half-Day Professional Tutorials** | | |
| ☐ PT-1 Corporate A/V Prod. - 11/2, 8:00 | $295** | $225** |
| ☐ PT-2 Accounting & Finance - 11/2, 1:00 PM | $295** | $225** |
| ☐ PT-3 Admin. & Management - 11/3, 8:00 | $295** | $225** |
| ☐ PT-4 Sales & Marketing - 11/3, 1:00 | $295** | $225** |
| ☐ PT-5 Macintosh Overview - 11/1, 8:00 | $295** | $225** |
| ☐ PT-6 Hands On Excel - 11/1, 8:00 | $295** | $225** |
| ☐ PT-7 Hands On Microsoft Works - 11/1, 1:00 | $295** | $225** |
| ☐ PT-8 Hands On HyperCard - 11/1, 1:00 | $295** | $225** |
| ☐ PT-9 Macintosh Overview - 11/2, 8:00 | $295** | $225** |
| ☐ PT-10 Hands On Excel (Adv) - 11/2, 8:00 | $295** | $225** |
| ☐ PT-11 Hands On HyperCard (Adv) - 11/2, 1:00 | $295** | $225** |
| ☐ PT-12 Hands On MacDraw - 11/2, 1:00 | $295** | $225** |
| ☐ PT-13 Hands On PageMaker - 11/3, 8:00 | $295** | $225** |
| ☐ PT-14 Hands On Cricket Presents - 11/3, 8:00 | $295** | $225** |
| ☐ PT-15 Hands On Adobe Illustrator - 11/3, 1:00 | $295** | $225** |
| ☐ PT-16 Hands On MacProject II - 11/3, 1:00 | $295** | $225** |
| **C. Three-Day Conference & Exhibits** | | |
| ☐ CE Including Vertical Market Case Studies | $125 | $95 |
| **D. Three-Day Exhibits Only** | | |
| ☐ EO Including Keynotes | $40 | $25 |

*Includes three-day Conference, Exhibits and lunch on the day of your seminar.

**Includes three day Conference and Exhibits. Individuals may attend a second Tutorial for an additional $95.

**5. HOTEL RESERVATIONS**
**Reserve your hotel room, if desired.**

Disneyland Hotel 800/854-6165 (in CA: 213/636-3251)

| Single Double | No./ Guests | Arrival Date | Departure Date |
|---|---|---|---|
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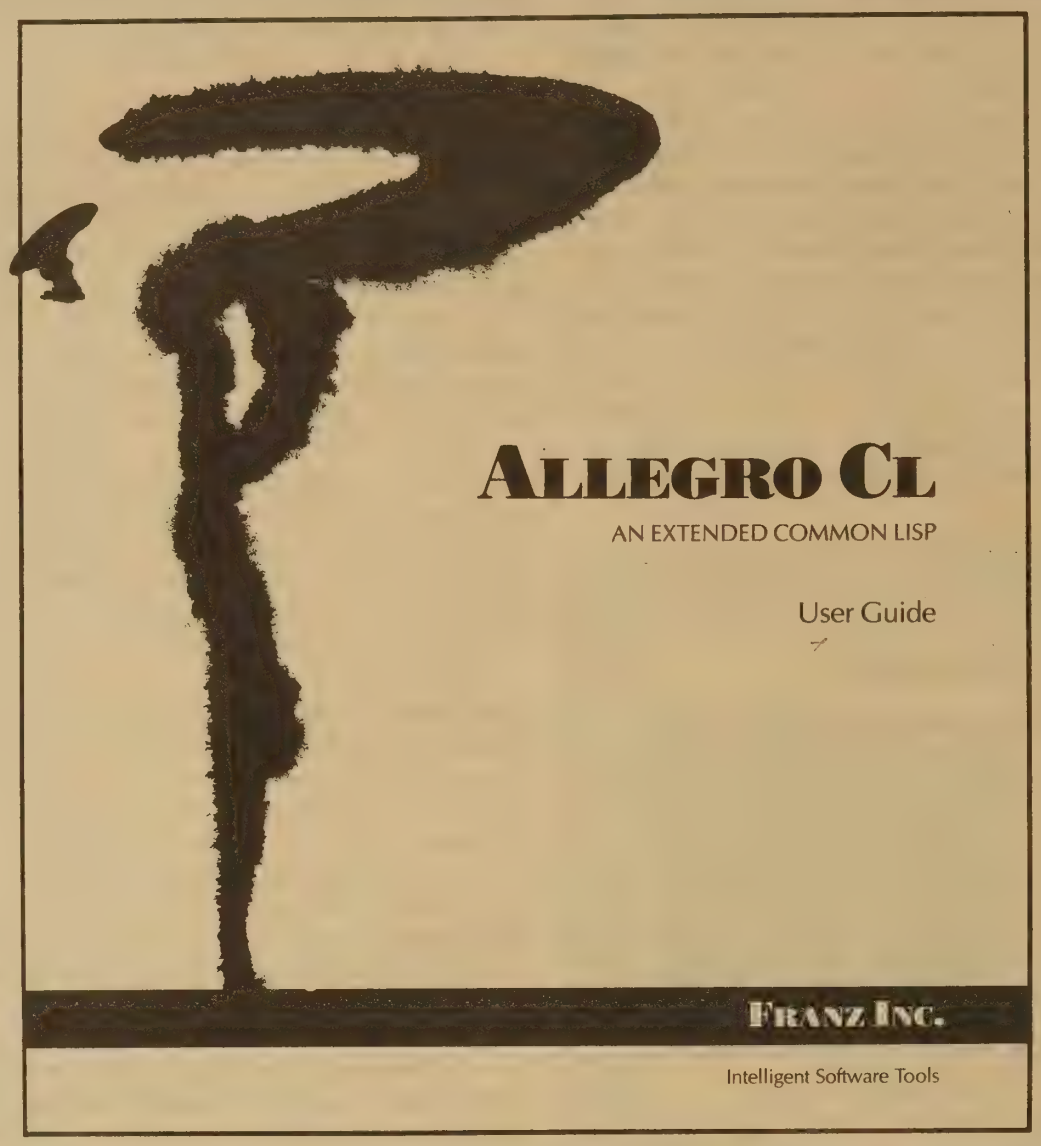


## Programmers Talk With A Common Lisp On Mac II

Lisp, the preferred language for artificial intelligence applications, expert systems and symbolic computation, is available in an A/UX compatible version for the Mac II. *Allegro CL,* an extended Common Lisp, comes from Franz Inc. and includes many of the features of traditional programming languages including arrays, floating point numbers and hash tables. With the aid of a foreign function interface, programs written in other languages such as FORTRAN or C can be integrated with Lisp. With *Allegro CL,* A/UX programmers can add sophisticated advisory and analysis components to the applications already running under A/UX on the Macintosh. ($1500.) Franz Inc., 1995 University Ave., Berkeley, CA 94704. (415) 548-3600.

## On Cue Launches Programs From Within An Application

Quitting an application to launch a new one from the Finder is a thing of the past with *On Cue,* a file launching utility from Icom Simulations. *On Cue* resides in the upper right hand corner of the screen. Selecting it as you would a Macintosh menu opens a customized list of applications and documents placed under it. Choosing one automatically closes the active window and application and opens the desired program or document. You must still save the closed document. The utility works with customized keyboard commands and can be made to open anywhere on the screen. ($59.95.) Icom Simulations, Inc., 648 S,.Wheeling Rd., Wheeling, IL 60090. (312) 520-4440.

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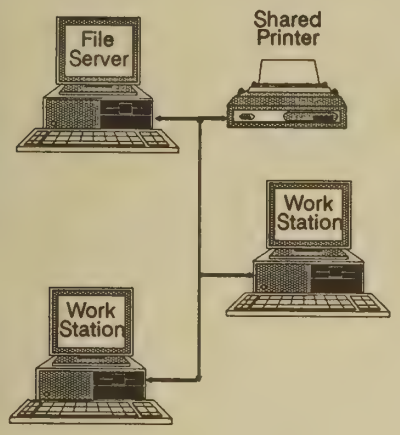


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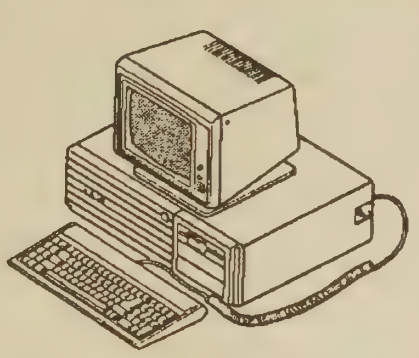

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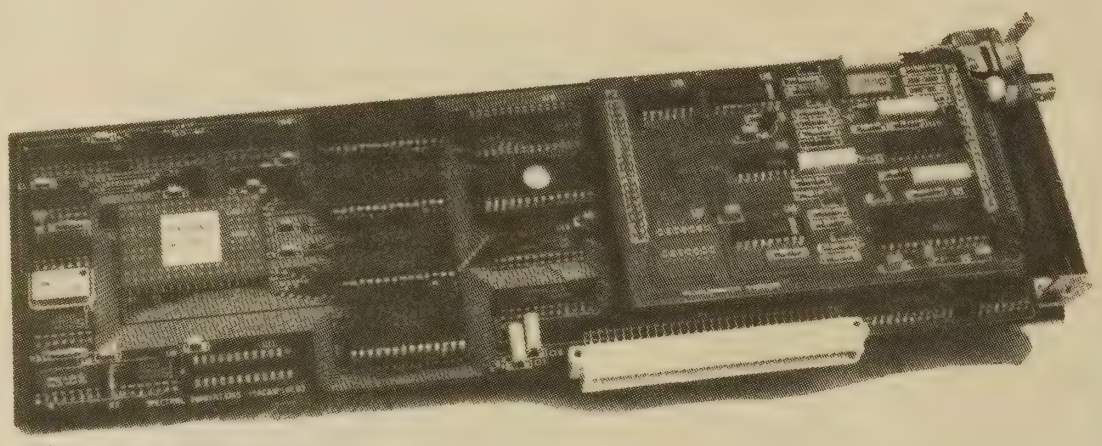
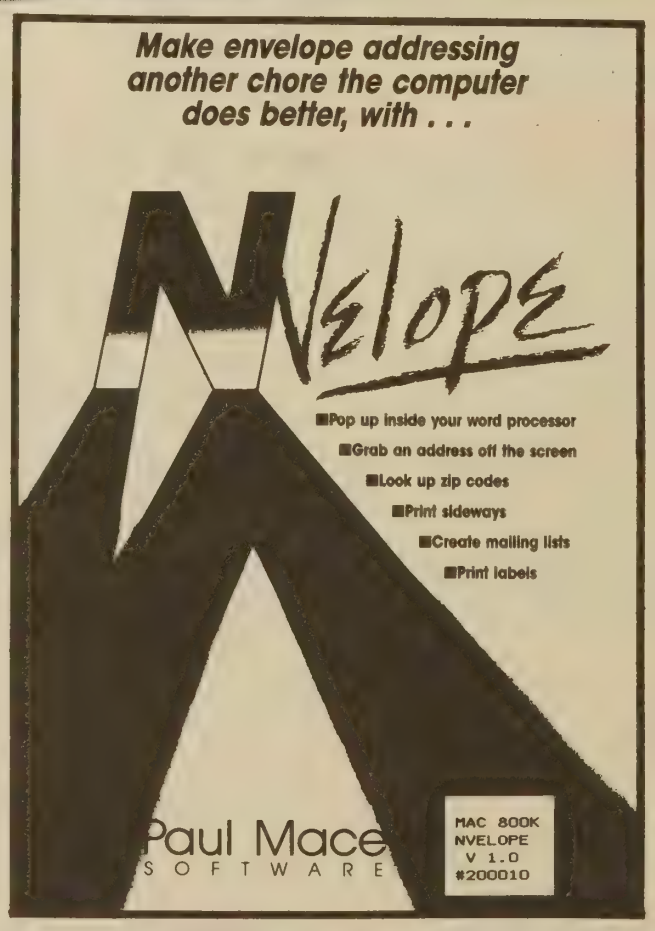
## New Compilers Support A/UX

C, FORTRAN and Pascal compilers for A/UX are now available from UniSoft. These compilers are optimized for the Motorola 68020 and 68881 floating point chips and feature one-pass compilation for maximum throughput. The C compiler supports all Western Electric and Berkeley UNIX extensions. UniSoft's FORTRAN Compiler passes the U.S. Government FORTRAN Compiler Verification Suite, and the Pascal Compiler implements the full ANSI-standard Pascal language, passing the ISO Level O test suite. ($495 each.) UniSoft Corporation, 6121 Hollis St., Emeryville, CA 94608. (415) 420-6400.



## Accelerator Card Transforms Mac II Into Interactive DSP Workstation

Spectral Innovations has introduced a floating point accelerator card for the Mac II with a menu-driven digital signal processing analysis package. Known as MacDSP, the board and accompanying software is available in three speed grades: 8 MFLOPS, 12.5 MFLOPS and 25 MFLOPS. MacDSP can acquire data at up to 124 kHz with a special data acquisition card, operate on that data using a variety of signal processing functions and display the results in real time. Real-time spectral analysis, filtering, windowing, modulation and other signal processing functions can be performed. Software and hardware are unbundled. (Software: $496; card: $2249-3241) Spectral Innovations, Inc., 292 Gibraltar Drive, Suite AA-4, Sunnyvale, CA 94089. (408) 734-1314.




## Desk Accessory Simplifies Printing Envelopes And Labels

*NVelope* from Paul Mace Software is a DA that provides formatting for printing addresses on different size envelopes and labels. The user can cut and paste an address from a word processing program into *NVelope* or enter an address directly into the desk accessory. *NVelope* stores addresses for future use. The DA also handles composing and printing index cards and Rolodex cards and comes with a list of Zip Codes for the entire United States. ($69.) Paul Mace Software, 400 Williamson Way, Ashland, OR 97520. (503) 488-0224.

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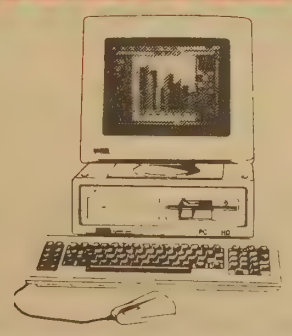

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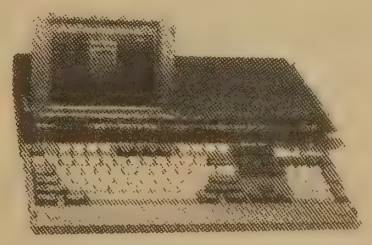

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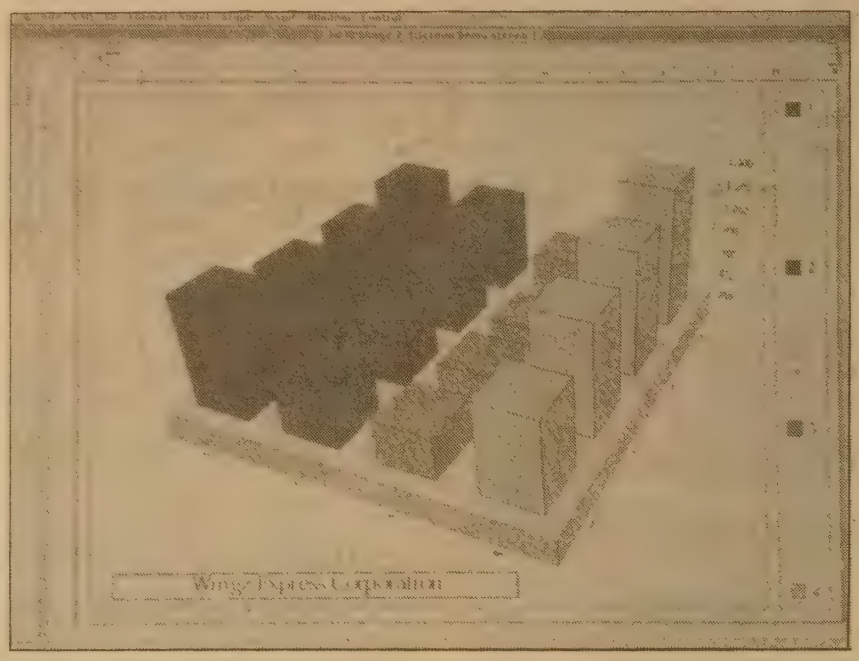
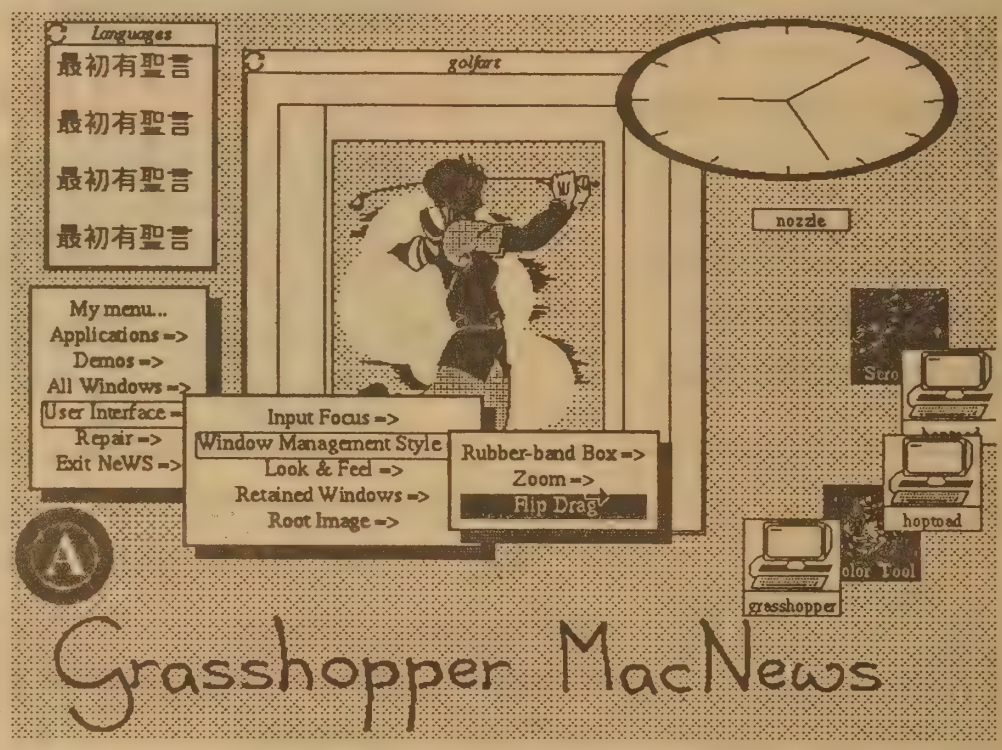


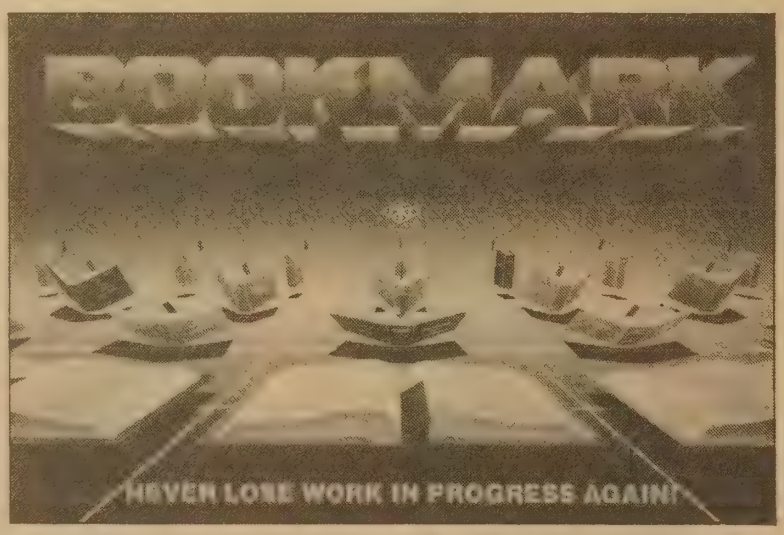
## Integrated Spreadsheet For The Mac II Runs Under A/UX

Informix Software has introduced a new version of *Wingz* that will run under A/UX as well as the Apple operating system for the Mac II. *Wingz*, a WYSIWYG integrated spreadsheet that integrates numbers, charts, words and images, contains advanced charting capabilities including 3D rotation and variable perspective, and an applications development language. Informix Software, Inc., 4100 Bohannon Drive, Menlo Park, CA 94025. (415) 322-4100.

## MacNews Delivers PostScript Windowing Interface To A/UX

Lovers of *NeWS*, Sun Microsystems' PostScript based windowing interface for UNIX, can find the same interface on the Mac II under A/UX via *MacNews*. *MacNews* from Grasshopper Group produces screen output in PostScript for accurate previewing of text and graphics prior to being sent to a laser printer or typesetter. *NeWS* servers from Sun Microsystems, Silicon Graphics, Whitechapel Workstations and Acorn Computers work with *MacNews* to provide consistent application and user interfaces for all the machines on a network. *Open Look*, the new AT&T UNIX window interface, will run under *MacNews*. Psterm, *MacNews*' terminal emulator, provides access to traditional UNIX tools whether they are on your local machine or across an internet. A minimum of 4 Mb of RAM is necessary. ($225.) Grasshopper Group, 212 Clayton St., San Francisco, CA 94117. (408) 266-4783.




## Bookmark DA Holds Your Place, Protects Against Crashes

*Bookmark* is a desk accessory that takes a snapshot of the Mac's RAM and records it to a reserved and hidden area of the hard disk subsystem. The user can then quit an application and resume later at exactly the same place. *Bookmark* not only makes returning to the same place in a file quick and easy, it also provides protection against crashes. The user defines regular intervals at which *Bookmark* takes a "picture" of RAM , a process that takes between three and nine seconds. The DA will not interfere with data entry, as it waits until the keyboard is not in use to operate. Saving a file with *Bookmark* does not take the place of Save or Save As. A hard disk and a Mac Plus or better is required. Intellisoft International, 51 Digital Ave., PO 5055, Novato, CA 94948. (415) 883-7656.

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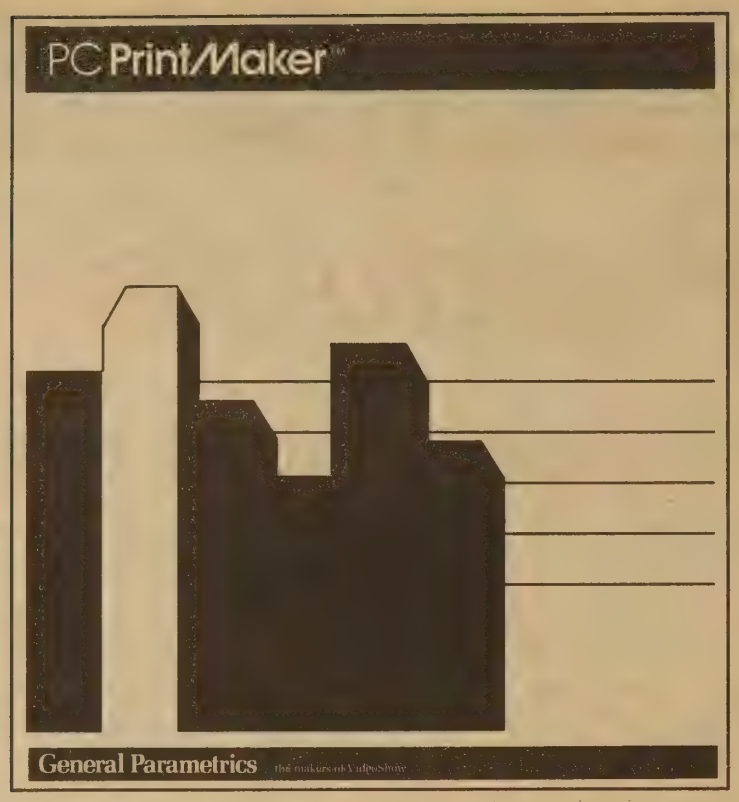
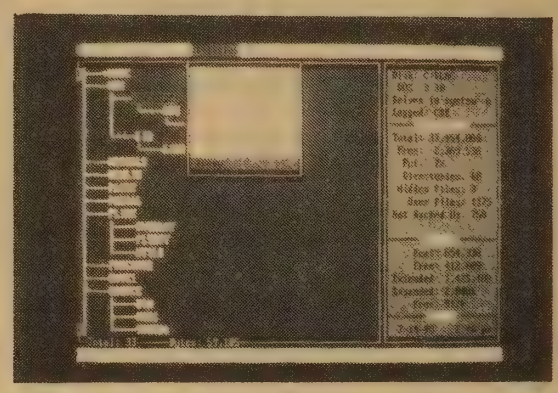



# PC BUYERS GUIDE

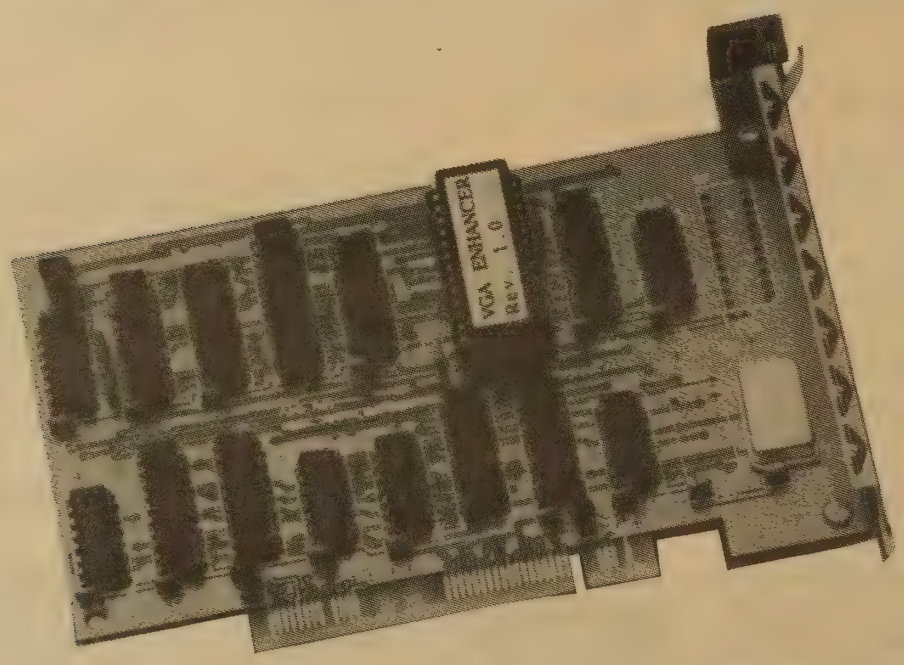
## Print Utility Produces 1000 Colors On HP PaintJet

Users of *Lotus Freelance Plus, Harvard Graphics, HP Graphics Gallery,* Micrografx *Graph Plus,* the *Master Series* from Ashton Tate, as well as General Parametrics' own *PictureIt* presentation software can use *Printmaker* software to produce professional quality hard copy and overhead transparencies in 1000 simultaneous colors on Hewlett-Packard's PaintJet color printer. *Printmaker* includes full-color on-screen preview, automatic kerning for typeset letter-quality spacing and the ability to handle picture files over 100K. Users can print one picture, a series of pictures or a multiple series of pictures automatically. *Printmaker* extends the color range of the PaintJet from seven colors to 1000 while maintaining high resolution. ($295.00.) General Parametrics Corporation, 1250 Ninth St., Berkeley, CA 94710. (415) 524-3950.

## DOS Enhancement Utility Uses Pull-down Menus, Displays Directory Info



*Tree86* is a DOS enhancement utility that streamlines many functions under DOS. The utility allows the user to find all duplicate files on a hard disk, find all files that have not yet been backed up, move selected files across directories or across drives, and find hidden files and subdirectories. *Tree86* supports the use of a mouse for selecting menus; without a mouse, the first letter of the menu name can be entered. Volume, DOS version, drives, total drive capacity, bytes free and number of directories and files and other information is available with *Tree86.* The utility supports EGA and VGA, and operates on PS/2 and PC/AT/XT and compatibles with 128K and DOS 2.0 or higher. *Tree86* is not memory resident. The Aldridge Company, 2500 CityWest Blvd., Suite 575, Houston, TX 77042. (713) 953-1940.




## VGA Enhancer For PS/2 Provides 3278/3279 Terminal Emulation

The Ahead VGA Enhancer short card is an OS/2 compatible board that runs on IBM 8503, 8512, 8513 and 8514 high resolution monochrome and color monitors and supports NEC MultiSync monitors. In addition to improving the performance of IBM's VGA, the Enhancer serves as a less costly alternative to Big Blue's $2500+ 8514 and 8514A monitor/adapter for IBM 3278/3279 emulation applications. The Ahead Enhancer provides the same full-screen emulation MODs which, together with the terminal emulation hardware or software, allow a PS/2 system to connect to IBM minicomputers and mainframes. The Enhancer also supports the emulation protocols for other computers from Digital Equipment, Tektronix and Hewlett Packard. ($399.00.) Ahead Systems, Inc., 1977 O'Toole Ave., Suite B 105, San Jose, CA. (408) 435-0707.

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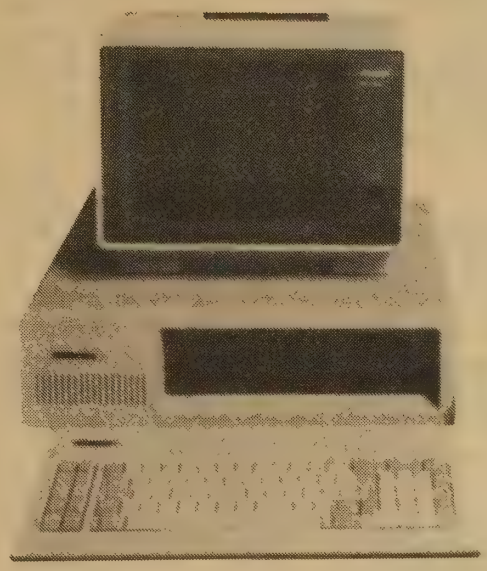

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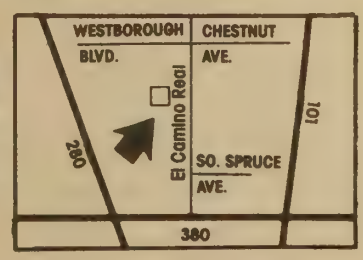

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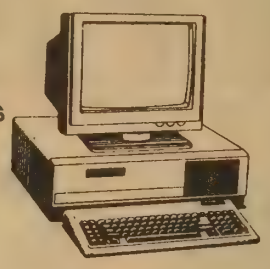

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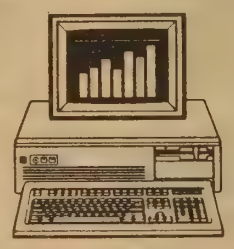

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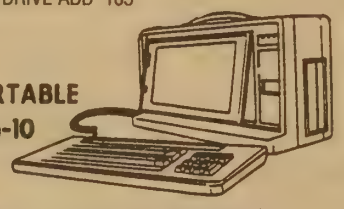

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## SCULLEY *continued from page 72*

sive disciplines."

The toolkit approach to simulation is being applied at Stanford to the humanities and social sciences. This toolkit, called ALIAS, is built on *HyperCard*, and has been designed in deference to a traditionally non-programming group: the humanities and social sciences faculty.

Using ALIAS, professors or students in anthropology, history or sociology can model a culture or period of history by entering their data into the toolkit.

ALIAS will in turn create a *HyperCard* stack that allows students to play the role of an individual of that culture.

It is an approach that combines simulation and hypermedia.

Simulation and hypermedia tools exist today. As they come into more widespread use we will find two things happening. First, authors and publishers will continue to enrich our libraries of subject linked matter. And second, developers will continue to make the underlying tools more powerful. We will have full, 3D motion graphics and stunning images on CD-ROM. But perhaps the most spectacular advance will not be in the presentation level, but will lie deeper in the programming.

Just a short way into the future, we will see **artificial intelligence** emerge as a core technology. Combined with our other core technologies, AI will boost simulations and hypermedia to new levels of realism and usefulness.

We will move, for example, from building molecules in two- and three-dimensional space, to building the environment in which they combine, where each molecule understands the structure and behavior of the other.

Another important contribution of AI will be intelligent agents that can learn a user's preferences and search strategies. These agents will transform the nature of academic computing. Agents will be sent to prowl among remote data bases and bring back the specific information and citations that you require.

These future systems are not that far away. Soon, faculty and students will be using systems that enable them to drive through libraries, museums, databases or institutional archives.

These tools won't just take you to the doorstep of these great resources as sophisticated computers do now; they will invite you deep inside its secrets, interpreting and explaining—converting vast quantities of information into personalized and understandable knowledge.

**John Sculley**

Herb Simon reminded us last year, "We think of revolutions as being sudden events, producing far-reaching changes in a very short period of time. But the revolution launched by the steam engine took, by any reasonable account, 150 years."

Changes in computing have been like a whirlwind in the last forty years. But I think we have only begun to see what innovation and creativity can produce in this industry.

The personal computer could become as galvanizing as the printing press in stimulating change n the world, in creating an environment for innovation and new ideas.

Let us remember that the printing press never wrote a single book. Authors write books. So too with the new technologies that I have described today. They will only bear fruit if we work together—universities, corporations and government—and if we recognize the role of the creative individual within these organizations.

We all have a role in making this vision of the future a reality.

The technologies we have seen today are only platforms. They are opportunities. They are possibilities.

They are, however, the tallest of platforms, the richest of opportunities and the broadest of possibilities that I know of. They will allow us to set loose an avalanche of personal creativity and achievement.

Once we have thousands and thousands of ideas to harvest, we may have the chance once again to create a second Renaissance, perhaps every bit as important as the first, in the early part of the next century. It would represent a rebirth and revival of learning and culture unleashed by new technologies. It would bridge the gaps between the arts and sciences. And it would signify the emergence of an integrated environment for instruction and research.

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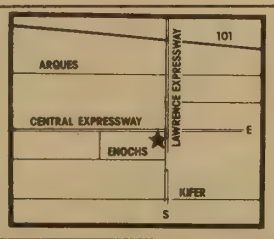


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## ADOBE AND THE POSTSCRIPT FUTURE *continued from page 60*

sion. It was announced today and will be shipped by the end of the year. So we're very pleased with that. Display PostScript needs at least a 386 machine and, as Steve [Jobs] said this morning, a couple of megabytes of memory. So there is an inherent cost in getting that kind of functionality.

**How highly do you think the success of Display PostScript is tied to the success of the NeXT machine? That will be the first platform.**

Not very.

**Do you see the NeXT machine as a good evangelism tool?**

Oh, *YES*. It's all I could have ever dreamed of.

**Is it truly beautiful?**

It is truly beautiful!

**One of the things happening in the micro world is that the micros are moving up, and the engineering workstations and the UNIX boxes are moving down, and there are some very interesting little clashes that are happening as that's going on. How does Adobe fit in to all this? Because it seems like Adobe is very strategically positioned to take advantage of this.**

I hope so! It was pretty clear that that was going to happen for a long time now, as processors got faster and as soon as you broke the fundamental memory barriers that were holding those things down. There is this fundamental appetite for memory. If the operating system lets you grow without bounds...

**So will programmers.**

Programs are very sophisticated now. Programs that you can buy for 500 bucks now used to cost $150,000. When *Illustrator* was first announced, the competition in that category was $50,000 and $100,000 programs. But I'd rather sell it for $500.

**What do you think of this quest for what's essentially the Macintosh front end and a UNIX back end, which is what Open Look is trying to do, OS/2 and Presentation Manager are trying to do, and Apple is trying to do with A/UX?**

I think they're all trying to get there. The question is, who's going to get there with the nicest thing. It's all right-headed thinking. You want more sophisticated interfaces and better tools to insulate the user from the grunginess of the operating system.

**Would PostScript offer any advantages in this situation?**

Oh, sure. Consistent imaging model between the display and the printer is really a big deal.

**Are there any UNIX machines that PostScript graphics are currently running on?**

There's Sun's implementation of NeWS... No, there really isn't, except in our laboratories. Actually, NeXT will be the first Display PostScript platform.

**Adobe's had phenomenal growth over the past two years. As an organization, what kinds of challenges do you face?**

Growing is very hard. Assimilating people, completely restructuring. 250 or 260 people is a lot, in a lot of companys' terms. Sun is now at something like six or eight thousand.

**Four thousand of whom were hired in the last year.**

That's right. That's literally true.

The problem with software companies is that we're very highly leveraged and we run a very tight ship. We have to have each piece knowing what the other is doing. We just can't grow and not keep control of the whole growth path. The nifty thing about Adobe is that everyone has a sense of owning a piece of the product. Everyone participates in producing these things, whether it's *Illustrator*, or the typefaces or the printers. There is a great deal of pride in the group. We've had a huge effect on the printing and publishing industry. Everyone gets a big kick out of it —that's the good part about it.

**Have you felt like you've had to pull back from being really hands-on?**

Actually, I've reverted. You have to keep all the communication going as much as you can. The job is communicating, rather than directing.

**What does Xerox think of all this? Are they sitting back there, tearing their hair, saying, "Why did we let all these people go?"**

Well, I don't know. It's very hard for me to put my head in their head. Every time I do—well, you could go crazy! □


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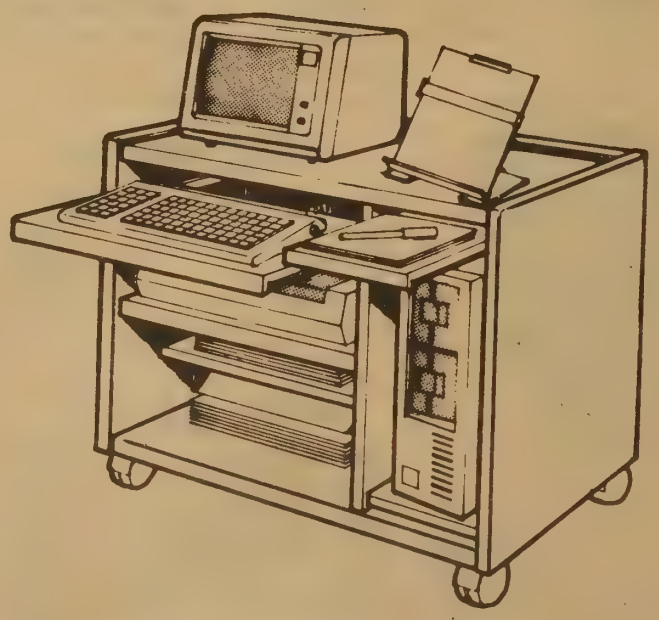

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BY BENNETT FALK

## *Strange Bedfellows:*

# UNIX And The Mac II, Part I

A/UX, Apple's version of UNIX for the Macintosh II, is one of the most interesting UNIX products ever to hit the market. The fascination comes as much from the combination of contrasting ideologies in the Mac II-A/UX product as from its features.

UNIX, of course, has a peculiar mystique of its own. Widely regarded as "esoteric," it has nevertheless become the operating system standard for small to medium-sized multi-user computers. As such, it offers an efficient way for users to share both data and hardware resources. UNIX does all this behind the user's back and with relatively little need for maintenance. It is also justly famous for the ease with which it may be ported to new hardware.

But, while the operating system services offered by UNIX are in very great demand, its user interface is decidedly not for everyone. Indeed, the UNIX user interface is probably the greatest single obstacle to its commercial success. The irony of this is that UNIX was designed to be a general purpose system, something anyone could use, offering tools for almost any purpose. In the hands of a knowledgeable user, UNIX does offer almost infinite versatility. But to be useful, it must first be learned, and the body of UNIX lore to be mastered can be intimidating. In addition, UNIX rewards cleverness, and while this makes learning the system easier, not everyone has the ability or inclination to be clever at a computer terminal.

The name "Macintosh" has come to stand more for a state of mind than a piece of computer hardware. Throughout the development of the Mac line, Apple has taken care to provide one of the very few completely integrated computer systems on the market. DEC's VAX/VMS line comes to mind as another example of an integrated computer system. Like VAX/VMS, the Macintosh system encompasses much more than hardware: it includes a proprietary operating system, a distinctive visual presentation and user interface, a standard for writing well-behaved applications and a vocabulary all its own.

Unlike other computer systems, however, the Macintosh has engendered very little resentment among users. Most people enjoy using the Macintosh and many feel positively liberated by it.

The appeal of Macintosh is based on much more than the lure of high performance hardware. Indeed, the Macintosh hardware is so tightly integrated with other components of the system that it is difficult to make accurate performance comparisons between the Macintosh and other computers.

The machine's specifications are respectable but hardly earth-shattering. The Macintosh II features a Motorola 68020 processor running at 15.667 MHz, a 68881 floating point co-processor, a 68851 memory management unit, at least 1Mb of RAM (4Mb minimum to run A/UX) and assorted combinations of disk drives. All this hardware comes in a nice rectangular box with expansion slots to let the adventurous user experiment with configuration and specialized accessories.

### Why A/UX?

It is a bold move to open up the Macintosh system to a non-proprietary operating system. Apple is, above all, a computer company, and the A/UX product would not be on the market if the people at Apple weren't persuaded that A/UX will improve Macintosh sales.

Behind the ideological questions, there are some sound technical reasons for the move to UNIX. The current Mac II hardware is powerful enough to perform multi-user, multi-tasking operations. Using UNIX to exploit these capabilities will be more efficient than writing a multi-user, multi-tasking operating system from the ground up. Essentially, A/UX is Apple's way of not making the OS/2 blunder.

In addition, A/UX was built with connectivity in mind. It offers all the software necessary to incorporate A/UX machines into existing Ethernet-based networks.

Finally, A/UX offers a relatively painless way for the Macintosh hardware to use processors other than the Motorola 68000 processor family. The Mac II's 68020 is serviceable but dated. As new processors become available, porting A/UX should be easier than writing a proprietary system for the new hardware.

The solution to the user interface problem may be as simple as grafting the Macintosh toolbox facilities onto UNIX. A first attempt at this is already present in A/UX 1.0. If this strategy succeeds, Apple will have a ready-made, proven operating system platform capable of growing with the advances in hardware technology, while maintaining continuity with the intangibles that are so important to the Macintosh system's success.

**Using UNIX to exploit the Mac II's capabilities will be more efficient than writing a multi-user, multi-tasking operating system from the ground up. Essentially, A/UX is Apple's way of not making the OS/2 blunder.**

### What Is A/UX Like?

A/UX has to be the most easily installed UNIX product ever. It is shipped already set up on an 80 Mb SCSI hard disk. The enclosure for the disk is about the size of a cigar box, and installation is just a matter of attaching the SCSI adapter to the external disk, connecting the Mac II and the A/UX disk with a cable and rebooting.

On reboot, the screen will contain a "SASH Partition" disk icon. (SASH stands for "Stand Alone Shell," a minimal platform from which A/UX can be booted.) Selecting the SASH Partition's icon and then opening the A/UX application icon it contains will start the UNIX boot sequence. For the early stages of booting UNIX, the traditional Macintosh user interface is used, but as UNIX comes up the world of dialog boxes and windows is replaced by a full-screen window titled "A/UX Initial Console Emulator." The mouse is disabled, the menu bar dimmed: Welcome to UNIX.

Macintosh purists may well be appalled at the sight of the Mac II running an operating system with a genuinely clunky user interface. UNIX devotees, on the other hand, will be right at home. The user interface may look clunky, but several nice touches have been added. The Console Emulator Window, for example, uses a Courier font identical to the one used by convention in UNIX books to illustrate commands and user input. What you see in A/UX will look exactly like it did in the book.

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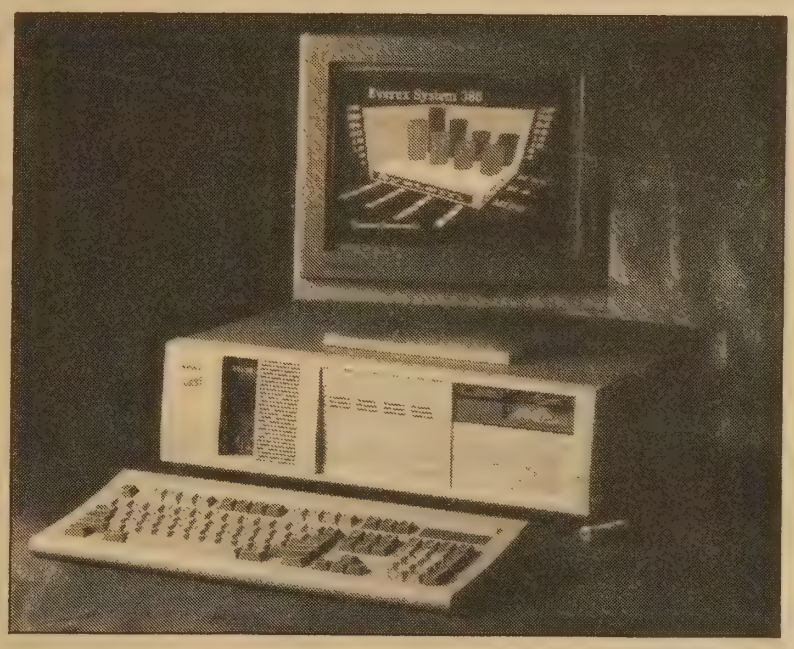

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| **Everex Step 386-16** | **3.93** | **27.3** | **19.5** |
| **Everex Step 286-16** | **3.27** | **21.4** | **18.4** |
| AST Premium 386-20 | 3.04 | 20.0 | 21.0 |
| Wyse 386-16 | 2.98 | 20.6 | 17.6 |
| Acer 386-16 | 2.99 | 20.6 | 16.2 |
| Compaq Deskpro 386-16 | 2.90 | 20.0 | 17.6 |
| IBM PS/2 Model 80, 16MHz | 2.87 | 20.0 | 17.6 |
| **Everex Step 286/12** | **2.45** | **15.9** | **13.7** |
| AST Premium 286-10 | 2.02 | 13.0 | 11.1 |
| Compaq 286-12 | 1.89 | 11.7 | 11.5 |
| IBM PS/2 Models 50, 60 | 1.58 | 9.8 | 9.8 |
| IBM PC/AT 8MHz | 0.93 | 8.0 | 7.7 |

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*Byte Magazine*, August 1988

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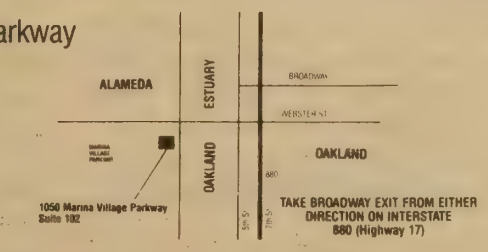

(Don't worry about the "device independent" UNIX interface: invoking the traditional Macintosh user interface tools from A/UX is startlingly easy. The ins and outs of making Macintosh applications co-exist with A/UX will be the subject of next month's column.)

A/UX may well be the Swiss Army Knife of UNIX systems. Once it's booted, you find that the 80Mb SCSI disk contains just about every utility ever written for the Berkeley and AT&T versions of UNIX. (Indeed, only about 10Mb remain for user files.)

The system is based on AT&T's System V Release 2, but UNIX watchers will be interested in how features from Berkeley UNIX have been incorporated into A/UX. For example, the system includes all three UNIX shells (Bourne, Korn and 'C'). It also features the Berkeley "Job control" commands as well as AT&T's shell layering. A/UX uses the "old" style UUCP, not the more recent HoneyDanBer style distributed by AT&T.

The system contains a tremendous amount of connectivity software, ranging from telnet and ftp to Sun Microsystems' Network File System (NFS) and "Yellow Pages" network management utilities. Virtually all that's needed to bring the Mac II up on an Ethernet based network is the EtherTalk hardware.

## The Benchmarks

Because A/UX offers an operating environment similar to that of other UNIX systems, it should be possible to compare the Mac II's performance with that of other similarly configured computers running UNIX. With this in mind, the Mac II with A/UX was put through a series of tests, originally published by David Hinnant in "Benchmarking UNIX Systems," *BYTE* (August, 1984). The Mac II was configured with 8 MB RAM, a 68881 floating point processor, and the 68851 memory management unit.

The results of the tests appear in Tables 1-4, along with the results obtained from running the same tests on two other machines: a Compaq 386 (16 MHz 80386, 2Mb Memory, and 8 MHz 80287 co-processor) running SCO's XENIX and a Sun Microsystems 3/50 (16 MHz 68020, 4Mb) running SunOS 3.2. (See "How Fast Is It?," *MicroTimes*, October, 1987. The source code for the tests adapted from Hinnant's article appeared in the *MicroTimes* article.)

On each computer, the test suite was run ten times. The figures in Tables 1-4 are averages for each test over ten repetitions. The figures labelled "Real" represent clock time or elapsed time for each test; "User" and "System" time are measurements of the time spent by the CPU running user instructions and privileged system calls respectively. The total CPU time is the sum of "User" time and "System" time.

The Mac II performs very well on the CPU intensive tests, turning in better times than the Sun 3/50 on nearly all the tests. The Mac II bested the Compaq 386 in the "Loop Test" and ran close to the Compaq in the "Prime Number Test."

On the disk intensive tests the Mac II showed mixed results, beating the Sun machine in the "Pipe Test" and the "Disk Write Test." The Mac II was unaccountably slow in the "Disk Read Test". Neither of the 68020-based machines approached the performance of the Compaq/XENIX combination in the disk tests.

The multi-user tests show the Mac II running efficiently, if not at breakneck speeds. It is slower than the 3/50 only in the single user shell test. The 386-based machine has a clear advantage on these tests as well, but the Mac II's times are not unreasonable.

The only dreadful performance by the Mac II came in the "Compilation Tests." The test measures how long it takes to compile the other test programs, none of which is very large. The A/UX system had trouble compiling any of the test programs in less than 20 seconds. The Sun system's times for the same tests ranged from 6 to 8.5 seconds; the XENIX system was even faster with times from 2.6 to 7.6 seconds. It's reasonable to suspect that the Mac II's compile times are slow because the compiler must read a large volume of information from disk: the compiler's poor performance may be nothing more than the cumulative effect of slow disk reads. In any event, dramatic improvement is needed in this area.

### Table 1: CPU Intensive Tests:

| | Compaq 386 | Sun 3/50 | Apple Mac II |
|---|---|---|---|
| **Executing sieve 100 iterations 1899 primes.** | | | |
| Real | 11.3 | 14.16 | 11.61 |
| User | 11.1 | 13.19 | 11.31 |
| System | 0.05 | 0.05 | 0.01 |
| **System Call** | | | |
| Real | 2.45 | 3.73 | 3.26 |
| User | 0.26 | 0.69 | 0.06 |
| System | 2.08 | 2.8 | 3.07 |
| **Loop Test** | | | |
| Real | 2.06 | 2.15 | 1.96 |
| User | 1.9 | 1.94 | 1.7 |
| System | 0.03 | 0.01 | 0 |
| **Function Call Overhead** | | | |
| **Function Call** | | | |
| Real | 0.35 | 0.4 | 0.42 |
| User | 0.2 | 0.28 | 0.3 |
| System | 0 | 0.01 | 0 |
| **Assignment** | | | |
| Real | 0.19 | 0.13 | 0.13 |
| User | 0 | 0 | 0 |
| System | 0 | 0.02 | 0 |
| Overhead | 0.16 | 0.27 | 0.29 |

### Table 2: Disk Intensive Tests

| | Compaq 386 | Sun 3/50 | Apple Mac II |
|---|---|---|---|
| **Disk Write** | | | |
| Real | 0.44 | 1.66 | 1.57 |
| User | 0 | 0 | 0 |
| System | 0.28 | 0.54 | 0.3 |
| **Disk Read** | | | |
| Real | 0.44 | 1.62 | 3.04 |
| User | 0 | 0 | 0 |
| System | 0.26 | 0.47 | 0.45 |
| **Pipe Test** | | | |
| Real | 1.41 | 3.55 | 2.18 |
| User | 0 | 0 | 0 |
| System | 0.6 | 1.65 | 0.96 |

### Table 3: Multi-User Tests

| | Compaq 386 | Sun 3/50 | Apple Mac II |
|---|---|---|---|
| **Shell (one user)** | | | |
| Real | 2.2 | 4.15 | 5.32 |
| User | 0.07 | 0.11 | 0.04 |
| System | 0.68 | 1.01 | 0.41 |
| **Shell (two users)** | | | |
| Real | 2.12 | 5.26 | 4.62 |
| User | 0.13 | 0.25 | 0.16 |
| System | 1.23 | 1.92 | 1.06 |
| **Shell (three users)** | | | |
| Real | 3.34 | 8.54 | 6.46 |
| User | 0.17 | 0.34 | 0.25 |
| System | 1.83 | 2.83 | 1.67 |
| **Shell (four users)** | | | |
| Real | 4.34 | 9.51 | 8.18 |
| User | 0.3 | 0.45 | 0.31 |
| System | 2.4 | 4 | 2.22 |
| **Shell (five users)** | | | |
| Real | 5.04 | 12.68 | 10.03 |
| User | 0.37 | 0.65 | 0.44 |
| System | 3.01 | 5.24 | 2.85 |
| **Shell (six users)** | | | |
| Real | 5.93 | 14.97 | 12.21 |
| User | 0.45 | 0.75 | 0.47 |
| System | 3.57 | 6.69 | 3.4 |

### Table 4: Compiling the Test Programs

| | Compaq 386 | Sun 3/50 | Apple Mac II |
|---|---|---|---|
| **Compiling dwrite.c** | | | |
| Real | 7.62 | 8.29 | 23.25 |
| User | 1.24 | 1.41 | 1.39 |
| System | 2.25 | 1.55 | 1.42 |
| **Compiling dread.c** | | | |
| Real | 3.3 | 7.35 | 24.01 |
| User | 1.29 | 1.51 | 1.55 |
| System | 1.17 | 1.49 | 1.45 |
| **Compiling fcalle.c** | | | |
| Real | 2.67 | 6.93 | 20.35 |
| User | 0.7 | 1.03 | 0.68 |
| System | 1.14 | 1.39 | 1.07 |
| **Compiling fcalla.c** | | | |
| Real | 2.54 | 5.93 | 19.77 |
| User | 0.68 | 0.92 | 0.5 |
| System | 1.08 | 1.34 | 0.95 |
| **Compiling loop.c** | | | |
| Real | 2.73 | 6.65 | 20.47 |
| User | 0.75 | 0.95 | 0.72 |
| System | 1.1 | 1.4 | 1.2 |
| **Compiling pipes.c** | | | |
| Real | 3.01 | 6.62 | 22.07 |
| User | 1.11 | 1.33 | 1.18 |
| System | 1.11 | 1.44 | 1.35 |
| **Compiling scall.c** | | | |
| Real | 2.63 | 5.73 | 19.88 |
| User | 0.67 | 0.92 | 0.48 |
| System | 1.07 | 1.34 | 1 |
| **Compiling sieve.c** | | | |
| Real | 3.1 | 6.74 | 22.04 |
| User | 1.18 | 1.43 | 1.59 |
| System | 1.09 | 1.45 | 1.35 |

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BY DAVID HAWKINS

# Customizing Your ST

A lot of us bought an ST, brought it home and started using it. We might have read the manual if there was something we really needed to know, but manuals aren't a whole lot of fun to read, right?

So after a while we get used to using our Atari without realizing that there are things we can change and customize easily. While it might be helpful to re-read the manual from time to time, we never get around to it.

This column is about some of the things that you might want to change about your setup and how you use your ST.

## Colors

As an example, if you are using a color monitor, you might have become tired of the bright green screen. You can change this using the Control Panel. The disk you use to boot the computer should have a Desk Accessory called "Control Panel." Move the mouse up to the top left side of the screen and pull down the options there. Move the bar down to Control Panel and click with the left button.

When the Control Panel appears on your screen you'll see a bottom row of boxes. These are called "Palette Boxes" and indicate the places where you can change colors. If you have a standard setup already, click on the box that is green. This is the foreground color that you see when you start up your system.

There are three vertical bars on the left side of the panel labeled R,G and B, for Red, Green and Blue. Clicking on the RGB boxes moves the sliding block in the middle up and down. If you click on the G at the bottom of the slide, then the greens on the screen become less intense. If you click on the B at the top, the green gets some blue added into it.

It is possible to change the background color as well. Click on the different Palette Boxes at the bottom and change them using the RGB sliding panel. Personally, I use a foreground green that's five parts green and two parts blue. For background I use just two parts blue to add a touch of color to the standard white.

## Other Panel Changes

While you are in the Control Panel you can make some other changes. There are two boxes for the clock and the calendar. Click on these to change the time and date. After you click on them you can use the ESC key to clear out the present setting and then type in the new information.

The next box in the Control Panel determines how soon the keys start repeating when you hold them down. Move the top slider to the left (using the mouse) to make the keys start repeating sooner. The bottom slider makes the repeating faster or slower once the repeating has started. If you do a lot of word processing, you might want to play with these two options.

The next selection determines how the computer determines if your mouse clicks are two separate clicks or a try at double-clicking. If you are having trouble double-clicking, set this for 0 or 1. That gives you more time to get both clicks in.

The remaining options have to do with the sounds the ST makes. Click on the bell to make it shaded, which means that your computer won't beep at you. Click on the keycap holding a C to keep the keys from clicking.

## Saving Changes

If you like the changes you've made in the system, you might want to have them take effect every time you start up. Click on the top left corner to close the Control Panel. Then select the Save Desktop option under the Options Menu (top right choice on the Desktop.) This will save your color choices as well as your other preferences.

If you do not want to save your preferences, then click on Cancel while you are in the Control Panel.

Changes are saved in a file called DESKTOP.INF —and you can copy this file to other disks if you use other disks to boot from occasionally.

## The View Menu

One of the options at the top of the screen is View. If you move the mouse to this menu, you'll see that you can select whether to see a file listed on the screen as an icon or as a full filename, including size and date. If you select one of these and then choose Save Desktop under the Options menu, the system will show you filenames this way the next time you start up. The same applies if you choose to have files sorted by extension, date, size or type.

## Messing With the Trash Can

The standard desktop has a Trash Can in the bottom left corner. You can move it to another place on the screen by clicking on it and moving the mouse while continuing to click on the icon. Selecting Save Desktop will cause the system to put the Trash Can in the new place the next time it starts up.

However, there may be times when you want several Trash Cans on the screen. I like having a Trash Can on both sides of the screen, so I did the following.

**After a while we get used to using our Atari without realizing that there are things we can change and customize easily.**

Use an editor to edit DESKTOP.INF —this file will have a line something like

**#T 07 0302 FF TRASH@ @**

which is your first Trash Can. Add a line right below that which says:

**#T 00 03 02 FF BLACK HOLE@ @**

and save the results as an ASCII file. The next time you start your computer using that disk, your desktop should have a Trash Can on both sides of the screen. If you don't like the placement, then move them and choose Save Desktop again.

By the way, if something goes wrong with the above (which would happen if you use an editor that doesn't save ASCII files) then remove DESKTOP.INF and use Save Desktop to create a new file with that name.

*Copyright © 1988 by David Hawkins. All rights reserved.* *David Hawkins is the host of the Atari conference on The WELL (415/332-6106); send email to dhawk. He has one of the first Atari ST 1040s sold in San Francisco goth monitors, an Okimate 20 color printer, and disks all over the room.*

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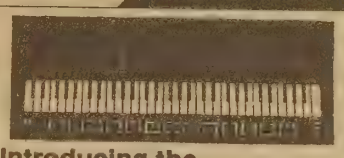

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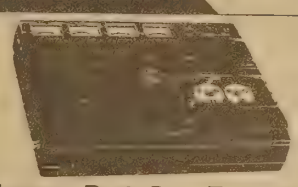

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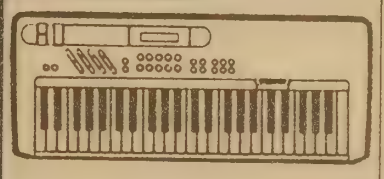

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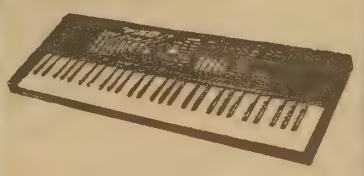

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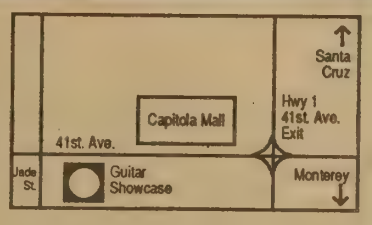


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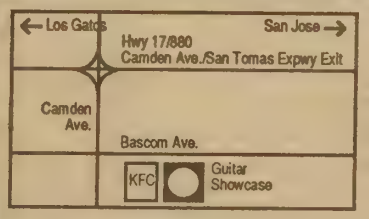


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# *Guitar Showcase*

BY MIKE MARKOWITZ

# The DataLink 2400 Internal Modem

Many users don't like a lot of extra wires and boxes cluttering up their computer systems. An external modem may hide unobtrusively under the phone, or (like the Apple Personal Modem) hang inconspicuously from the wall socket. But for neatness, nothing beats an internal modem, tucked into a slot within your computer. You don't have to pay for a case. You don't have to pay for an extra cable. You're buying pure performance.

Meet the DataLink 2400.

This modem was designed for Apple users who are serious about telecommunication and lucky enough to live in regions where the phone lines are not too noisy. Until recently, the move to 2400 baud carried a price tag well beyond the means of common folk. Not only were the modems expensive ($500-700), but many online services slapped heavy surcharges on 2400 baud connect time. The modems are now becoming more affordable, and in many cases, the rates are equivalent.

**I found the difference between 1200 and 2400 baud exhilarating. You spend a lot less time waiting for text to be transmitted or received, and this can add up to a perceptible reduction in Those Dreaded Phone Bills.**

## Hardware

The DataLink 2400 is neatly engineered, with only 13 chips, all socketed. This increases the cost of production, but makes replacement a snap in the unlikely event that a component should fail. Edge connectors are real gold. DIP switches are clearly marked, and overall workmanship is meticulous. The board is packaged in a static-safe bag and coddled in a foam-padded shipping container. A particularly handy feature is a little external connector box that attaches to the back plate of your Apple so that you can disconnect the phone lines without opening the case. A tiny hex wrench is provided, so you can tighten down the nut that holds this connector box firmly in place. A good long modular phone cable is included in the package.

The DataLink 2400 can live in any Apple slot except slots 0 and 3 of the II+, slots 2 and AUX of the IIe, and slot 3 and the memory slot of the IIGS. Software generally expects to find a modem attached to slot #2, so this is the preferred location. Installation is quite easy and the manual provides clear instructions, illustrated with photographs. On the IIGS, you must enter the Control Panel and set the DataLink's slot to "Your Card."

The performance of any modem is largely a function of the software driving it, but I found the difference between 1200 and 2400 baud exhilarating. You spend a lot less time waiting for text to be transmitted or received, and this can add up to a perceptible reduction in Those Dreaded Phone Bills.

## Software

The 5.25" disk included with the DataLink contains two different communications programs: *DataTerm* and *OnLine 64*. *DataTerm* is an improved version of the popular shareware program *Talk Is Cheap* by Don Elton. It requires an Apple IIe with 128K or an Apple IIGS. *Online 64* is a simpler program that runs on Apple II+ or IIe systems with only 64K of memory. Experienced users can also directly access the firmware on the card, which includes the Hayes-compatible AT command set.

*DataTerm* is a sophisticated program, highly regarded by several Apple sysops I spoke with. Most commands are executed with simple open-Apple or closed-Apple keystroke combinations. You can print on-line and construct all kinds of powerful macros. It lacks the point-and-click convenience of newer programs, however, like *MouseTalk* or software written especially for the IIGS. I could not get *MouseTalk* to recognize the DataLink 2400—it only seems to support external modems on the IIGS. The AppleLink Personal Edition (beta test) software worked fine, after I discovered the program recognizes the modem as an Apple Super Serial Card.

The *DataTerm* disk also includes some utilities, such as the public domain programs ALU and BLU, used to pack and unpack files. *FreeWriter*, a little word processor for creating or reading text files, an "analog loopback test" and a modem game.

**Applied Engineering is legendary for well-made and well-supported hardware. Its five-year warranty is remarkable in an industry where most vendors don't want to know you after 90 days.**

## Documentation

The package includes a 69-page user's manual for the modem and 96-page manual for the software. Both are clearly organized and packed with good information. The modem manual, for example, includes a brief tutorial on the ProDOS operating system, and the software manual has an excellent glossary of the rather intimidating terminology of telecommunication. There is a Quick Reference card for the *DataTerm* software and AT firmware commands, and a packet of low-cost special offers from various online information services.

At $239, the AE DataLink 2400 represents an excellent value. Applied Engineering is legendary in the annals of Appledom for well-made and well-supported hardware. The five-year warranty is remarkable in an industry where most vendors don't want to know you after 90 days. Technical Support is accessible, professional and not toll-free. (Applied Engineering, P.O. Box 5100, Carrollton, TX 75011, 214/241-6060.) □

*Mike Markowitz is a computer engineer for a large Southern California aerospace firm. He has been writing about Apple II computing since 1984. You can reach him on AppleLike (MOUSKOWITZ), The Source (SIG060) or GEnie (M.MARKOWITZ2).*

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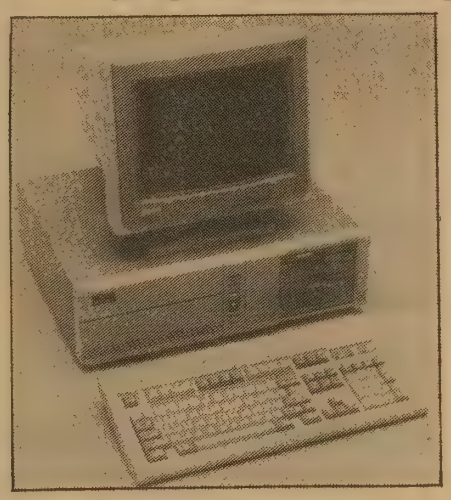

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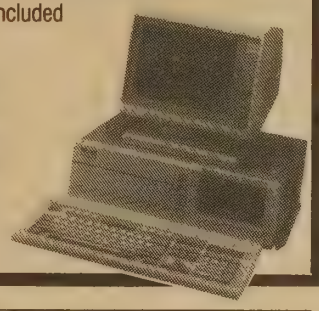

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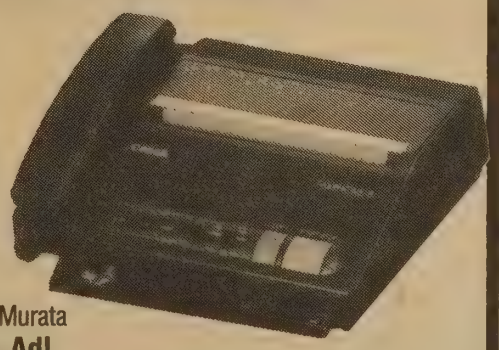

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*BY MATTHEW LEEDS*

# Seven Million Commodore Owners Can Upgrade To Amiga

**By Matthew Leeds**

Commodore is offering owners of any Commodore computer the opportunity to trade in their existing computer and receive a $100 credit towards the purchase of an Amiga 500 or Amiga 2000. This program will run through the end of 1988 and is likely to make this an Amiga Christmas for many Commodore owners. For more information on this and other sales programs from Commodore you can call 800-343-3000. This is the first time in a long while that Commodore has had an 800 number, and in many ways it marks their transition to an aggressive sales and marketing stance.

## Electronic Arts Video Training

Electronic Arts has moved into the video training arena with the release of *Video Guide To DeluxePaint II*, a VHS tape of tips and techniques for *DeluxePaint II*. The program offers specific examples of advanced uses of the tools and effects in *DPaint*. The 30-minute tape sells for $19.95 and is only available directly from Electronic Arts. Call their Direct Sales line at 800-245-4525.

## New Improved Balance Of Power

Mindscape has announced an upgrade to one of my favorite games: *Balance Of Power: The 1990 Edition*. This improved version features a new multipolar level. The non-superpower countries of the world now pursue active foreign policies; you must attempt to keep your allies from following their own interests and create a united front. The basic goal of the game remains the same: assume the role of either the President of the United States or the General Secretary of the Soviet Union, stay in office for eight years without initiating a nuclear conflict, and accumulate more prestige points than the opposing superpower. At your disposal are the tools of your trade: diplomacy, military aid, treaties and espionage.

This is an excellent game. You don't shoot down aliens in spaceships or squash infantry with a tank, nor race a speeding car around an endless track. You learn about geography, politics, diplomacy and a little history. To win, you must find a balance between aggression and appeasement, finesse and brute force. Hand-eye coordination and quick reflexes on the firebutton have no place here. Your mind is what gets exercised. Highly recommended.

## Forms In Flight

Micro Magic has released a new version of *Forms In Flight*. This new version includes curved surfaces and splines, phong shading and texture mapping. Hierarchical animation using motion paths, extrusions, support for IFF fore and backgrounds, overscan and PAL support, undo and library objects have also been added. Current owners can upgrade for $25.00. The new suggested list price has been set at $119.00.

## PostScript On The Amiga

The Amiga has been out for about three years now. Commodore has targeted desktop publishing as an important market segment for the Amiga, and PostScript support is an integral part of desktop publishing. Early in the Amiga's life a small independent developer created a set of PostScript utilities for the Amiga. The developer, S. Anthony Studios of San Francisco, has recently expanded the line of Amiga PostScript products.

*LaserUp! Utilities* is a collection of PostScript text formatting procedures for outputting text files as PostScript compatible files. *LaserUp! Fonts* is a collection of downloadable PostScript printer fonts. These are fully scalable to any point size. *LaserUp! Plot* converts *Aegis Draw/Draw Plus* files to PostScript objects.

*LaserUp! Print* will accept any IFF format picture (including HAM) and and convert it into a half-toned PostScript file. It will let you scale and position the image on a page, select a variety of borders and screens, and either save it as a PostScript file or send it to the printer. It will also produce registered color separations.

*LaserUp! Print* provides excellent control over the image. You can select any rectangular portion of an image, draw or edit on the image, position a title in a variety of PostScript fonts, control the aspect ratio and scaling of the image, control the position of the image on the page, control the contrast of the image and place more than one image on a page.

The angle, half-tone screen type and density can be set from a large selection in the menus as can the type of border. Images can be saved as EPS files for inclusion in other PostScript programs or transportation to other operating systems.

You should keep in mind that this is not a complete desktop publishing program. It does not offer the same features as a traditional page layout application, but it is priced at a fraction of what those programs cost. If your PostScript needs are modest, or you only need to print IFF graphics to PostScript (or create color separations) then *LaserUp! Print* may be just the ticket for you. Contact S. Anthony Studios at (415) 826-6193.

**To win Balance Of Power, you must find a balance between aggression and appeasement, finesse and brute force. Hand-eye coordination and quick reflexes on the firebutton have no place here. Your mind is what gets exercised.**

## Audio 2000

Perhaps one of the most original and innovative new products for the Amiga 2000 is Audio 2000, an internal stereo amplifier for the 2000. The Amiga's stereo audio output is line level. This is barely sufficient to drive a pair of mini-headphones, and generally you'll find that most Amiga owners have hooked the audio outputs up to a boombox or stereo system.

The Audio 2000 is the first product I've seen for the 2000 that mounts into one of the IBM card slots. Since it only uses the slot for power, this is a perfect solution to the common problem of what to do with the two unused slots. It has a second small faceplate that replaces the power and hard disk indicator faceplate on the front of the 2000. This replacement faceplate has power and hard disk indicator LEDs, and also contains two volume sliders and a headphone jack.

Installation is easy. My only complaint with the installation procedure is that the leads to the front indicator LEDs on the new faceplate do not accept the connecting jacks already in place, which forces you to cut off the existing pin jacks. A small quibble.

The Audio 2000 outputs over 4 watts per channel at less than 1% distortion. This will easily drive small speaker systems at a volume level adequate for most Amiga owners. The addition of front mounted volume controls and a headphone jack alone are worth the cost of the system. List price is $79.95. Contact Day's at (614) 397-5639.

*Matthew Leeds has been involved in the high tech field since he blew up his bedroom playing with a children's chemistry kit. He has been using Commodore computers since 1982 and has a strong interest in photography, video, graphics and related fields.*

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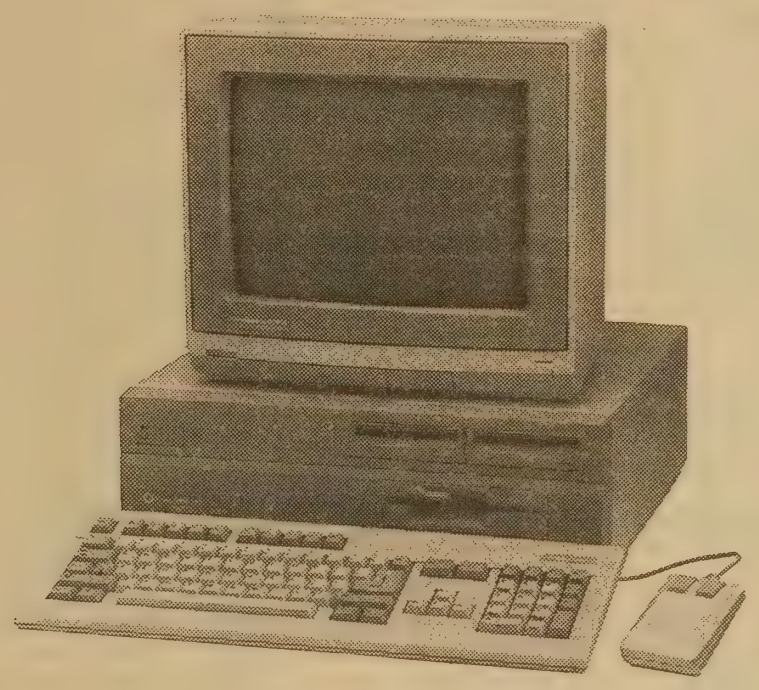

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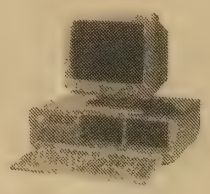

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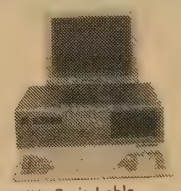

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# REVIEWS

*continued from page 106*

several times that the academic version of *VP-Planner*, which the book addresses, cannot handle the standard version's multidimensional database functions, and has little to say on the subject of multidimensionality beyond defining it. Since he treats the accounting, graphics and database aspects of the program so well, the special capabilities of three-dimensional databasing probably warrant further discussion.

All in all, this book's a good buy. You'll be able to use it as a reference after you've gotten familiar with it. If you don't know how to use spreadsheets, this is a good hands-on teaching text. If it's used in an organized class, you'll find it better than the standard texts I've seen. I'm quite happy to have this book, myself. Ask your library to get a copy, too.

## DOS User's Desktop Companion

**By:** Judd Robbins
**Published by:** Sybex Inc., Alameda, CA (1988)
**Suggested retail:** $24.95
**Reviewed by:** Robert D. Athey Jr.

This hefty book is loaded with summary tabulations of the DOS commands, their definitions and use. It's divided into seven parts, averaging about three chapters each. The parts deal with topics such as "What is DOS and how to start," "Disk and directory structures," "Communications" and so on. There are six appendices which deal with error messages, including the hidden ones, in a very accessible manner; there's also a glossary, a problem diagnostic guide and a discussion of what to do with more than 640K memory.

The book is a teaching tool, as well. The explanations of advanced DOS commands are quite lucid, with a bit of example shown for each command to show what it does. The discussion includes such advanced techniques as partitioning the hard disk and some disk management techniques. Another chapter deals with commercial programs Robbins recommends for the improvement of disk management. I'm a bit mystified that he recommends the *Norton Utilities*, *Q-DOS II* and some others, while there are public domain programs that do these jobs just as well; *Magic Key*: *Nsweep* and *Cweep214* come to mind.

In any case, I found the book very useful. It certainly answered some of my questions which the standard DOS documentation left foggy and uncertain. The real benefit is the collection of tips on how to use a command effectively, and how to make your computer operation a bit more organized and hence easier to use. Any company or public library should have this book, and it's not a bad idea for the frequent DOS user to have his own copy.

## PERIPHERALS

## CT102 Keyboard

**By:** Northgate Computer Systems
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**Price:** $99
**Reviewed by:** Woody Liswood

Run, scramble, hustle, bustle, get yourself onto the phone and order this keyboard. Don't settle for anything less.

As you probably know, the keyboards which come with the XT, AT and 386 clones just don't cut it. They are designed out of mush. Their manufacturers seem to have forgotten that there are a multitude of programs out there which require control key sequences to do anything. But the control key is now down somewhere left of the space bar. Then pressing the control key and some other key requires the agility of a contortionist.

Lastly, forgetting that the original IBM keyboard had the function keys located in two parallel rows next to the left side of the keyboard, the AT-style 102 key keyboards put the function keys across the top. But, now, what about the control, alt and shift sequences along with the function keys? It takes two hands just to do a single control sequence.

The new CT102 keyboard does everything right.

First, where you put the CONTROL key is now up to you. There is a switch on the back of the keyboard which automatically switches the CONTROL and the CAPS LOCK keys for you. And, just to make things nice, the keyboard comes with an extra CONTROL and CAPS LOCK key caps the right size for your new configuration.

Do you wonder where your hands are when you are keyboarding with your nose just inches from the screen? Does that screen fill up with "domryhinh" when you type "something"? With this CT102 keyboard, there are two small bumps, one on the "F" key and one on the "J" key so that your fingers can find their homes without the use of your eyes.

Do you function key your programs to death? The function keys are back where they were with the original

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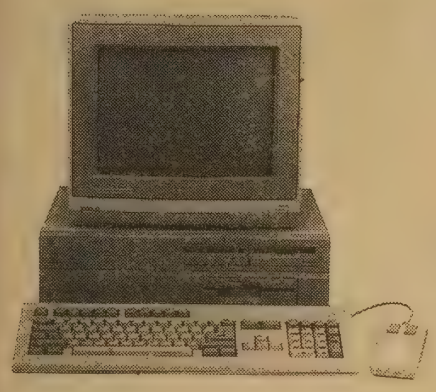
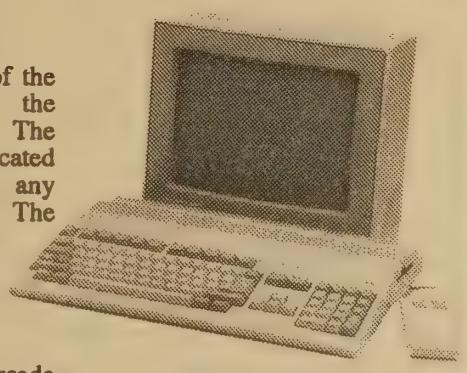
## Amiga 2000



The Commodore Amiga 2000 is an easy-to-operate personal computer that gives you freedom of expression by letting you create powerful presentations in virtually any presentation environment. In desktop publishing, you can produce anything from a simple black and white document to a full color magazine - complete with color separations. In live presentation, you can connect the Amiga 2000 to any RGB projection television, and captivate your audience with an Amiga-generated electronic slideshow. And for video presentations, the Amiga 2000 gives you desktop access to professional video studio features like titling, fades and wipes - even combining existing video footage with 3-D animation and the Amiga 2000 color graphics! Come in for a demonstration and find out why the Amiga can give you a major advantage in desktop presentation!

## Amiga 500



Come in for a demonstration of the Commodore Amiga 500 - the Ultimate Home Computer! The Amiga 500 offers sophisticated power at a price any family can afford! The Amiga 500 features advanced wordprocessing, databases and spreadsheets. The Amiga has true arcade quality graphics for the home; in fact, some coin-operated arcade machines use Amiga graphics! You can create pictures and animation in 4096 colors, run several programs on-screen at once with multitasking, and hook the Amiga 500 into your home stereo system and get high fidelity stereo sound like you've never heard on a computer! The Amiga 500 comes with 512K of RAM, which is easily internally expandable to 1 megabyte. You also get a 3.5" 880K disk drive, and the mouse and easy-to-use **multitasking** operating system come standard, to get you started right away. Ask about our videos featuring the Amiga 500 and its big brother, the Amiga 2000. Find out what an Amiga can do for you!

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Visit AmiExpo Los Angeles and see what the Amiga is all about - what it can do, what software is available, and how to use it! There will be seminars held by professionals in various fields using the Amiga as a tool for graphics, music, word processing, business, and many other applications. And while you're there, stop by our booth and check out our selection of over 1000 products for the Amiga!

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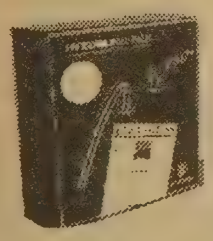
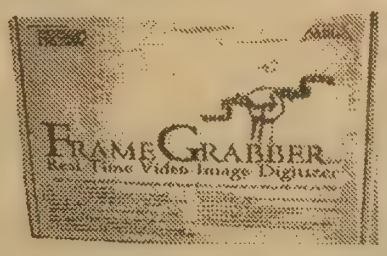


Get into desktop publishing on the Amiga with *Professional Page* from Gold Disk! Features include: built-in color separation, structured drawing tools, support of all major Amiga word processors, and much, more!

**Creative Computers price: $249**




Progressive Peripheral's new *FrameGrabber* lets you digitize any full color image, in any resolution, in real time! *FrameGrabber* digitizes a frame in 1/30 of a second, and the included software can manipulate your images and save them in IFF format for importing into any Amiga graphics program. The *FrameGrabber* comes with all necessary cabling and works with all Amigas. Stop by and check out this hot new Amiga product!

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IBM XT keyboard—in two rows along the left side of the computer. F11 and F12 are separated by a small space and are placed above the two rows near the top edge of the keyboard.

Yes, the arrow keys are separated from the number keypad. Yes, above these arrow keys are Insert, Home, Page Up, Delete, End and Page Down, in two rows. Above that are the Print Screen, Scroll Lock and the Pause keys. An ALT-Print Screen gets you the SYSRQ signal. The number pad is as expected, with (reading from left to right across the top of the pad) Num Lock, / * - all together; down the right side of the pad are + = and the Enter key. There is, as you can see, an additional = key alongside of the keyboard.

To help you remember what your function keys might mean, there is a write-on-able and removable plastic strip which fits across the top of the keyboard to allow you to write in the assignments for your favorite program.

All this is quite nice, but just so much window dressing if the feel of the keyboard is bad. The CT102 feels great—not the heavy and metallic feel of the original XT keyboard, which I always thought was too much of a good thing.

I have lived in the clone world for a few years now. That, by the way, includes an original Compaq with the original mushy keyboard. I spend about six or more hours at a keyboard at a time, almost every day, and have grown tired of the mushy keyboards I have been using.

The CT102 has a positive response, with no keyboard bounce. The slight click sound as you press the key helps in knowing what you are doing. There is a small audible click just before the key bottoms in the holder, making it easy to know whether your fingers are getting ahead of your typing. One of the most common errors I used to make is that I would get ahead of myself while typing and have lots of reversed characters. This keyboard has almost eliminated that from my typing mistake repertoire, since I know when the key has made contact. With the mushy keyboards, the fingers never quite knew what they were doing.

I would not purchase any other keyboard. Period. That is more than I can say about any other piece of equipment which has made it into my environment and survived to be put into daily use. (Northgate Computer Systems,13895 Industrial Park Boulevard, Suite 110, Plymouth, Minnesota 55441, 612/553-1695.)

## WORD PROCESSORS

### TianMa Chinese Text Processor

**By:** Arrakis Technologies
**For:** IBM PC and compatibles; requires 512K and graphics card
**List price:** $695
**Reviewed by:** Mike Markowitz

The idea of a Chinese word processor sounds like a joke, conjuring up images of a keyboard 30 feet long with the typist running madly back and forth. It's rather ironic that the people who make so many of our computers in Taiwan, Hong Kong and Singapore cannot use them for their own native language.

Until now.

Chinese is written in beautiful graphic characters. They are the vehicle of a rich and ancient culture, and a precious heritage for every literate Chinese person. Our "Roman" alphabet represents the sounds of spoken Chinese so poorly that romanization cannot ever entirely replace those characters. About 2000 characters are sufficient for basic literacy. One standard Chinese-English dictionary lists 7773 characters, including many obscure and archaic variants.

The problem of representing the characters digitally was first solved in the 19th century, when each one was assigned an arbitrary four-digit telegraph code. Not exactly convenient for word processing, however. Chinese dictionaries are arranged according to a system of 214 "radicals" (basic graphic elements) plus the number of brush strokes. Not very practical for a keyboard.

*TianMa Chinese Text Processor* is pure magic. You type romanized Chinese on a standard keyboard, and the characters flow across the screen

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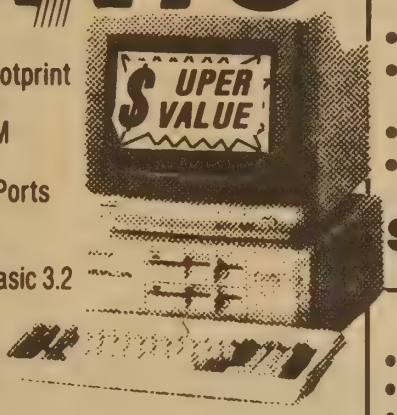


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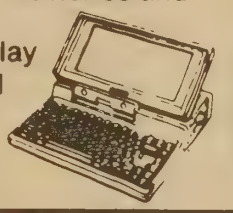

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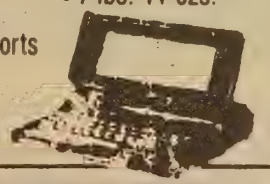

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in a surprisingly legible typeface.

There are several different systems for representing spoken Chinese in the Roman alphabet. In English-speaking countries, the Wade-Giles system, developed by British missionaries, has been more or less standard for decades. The People's Republic of China has adopted the Pinyin system, which uses all 26 letters, some for sounds very different from their English equivalents. "X" in Pinyin, for example, is a hissing sound (hs) and "Q" is close to our (ch). *TianMa* uses the Pinyin system. Since this is unfamiliar to many overseas Chinese and speakers of non-standard dialects, a complete tutorial is included in the package.

Chinese has many homophones—words that sound the same but mean different things. It is a great language for puns. In written Chinese, the characters prevent ambiguity. In spoken Chinese, a system of tones, plus the shared understanding of context between speaker and listener, serves the same function. The sound "tian" means "sky" or "heaven," for example, but other characters that mean "field," "sweet," "to increase" and "exterminate" share the same sound.

How do you teach a computer to understand the context of a word? The designers and programmers of *TianMa* have applied powerful statistical and artificial intelligence algorithms to this problem.

Consider the name "TianMa," which literally means "sky-horse" or "flying horse." Like Pegasus in the West, TianMa is a symbol of speed and power. It is a stock phrase—if you hear "Tian" and "Ma" together, there is a high probability that the speaker means "flying horse." The program recognizes thousands of stock phrases and combinations, so when you type in the sound, there is a good chance that it will display the correct characters on the first try. If it doesn't, you can easily insert any of the other possibilities. You move the cursor to the character you want to change, press F9 and select your choice from a pop-up window. It is very easy, however, to insert Roman-alphabet words or phrases in the middle of your Chinese text. Through TMDOS, you may even use *TianMa* to enter Chinese text into your Chinese *dBASE III*, Chinese *WordStar*, *Lotus* and other CCDOS-based application programs.

An operator familiar with Pinyin can use the program immediately, with no special training. According to the vendor, someone who types 50 words per minute in English can pound out 108 characters per minute with *TianMa* (most single characters are two-, three- or four-letter Pinyin syllables). Both the simplified characters (used in Mainland China) and the "classical" forms are supported. Users who prefer the Chinese National phonetic alphabet (Bopomofo, or zhuyin fuhao) may toggle the keyboard to Bopomofo-entry by the Scroll Lock key. A Bopomofo tutorial is also included in the *TianMa* package, on a separate diskette.

*TianMa* is packaged on a ROM-card that is easily installed in a PC or compatible. It requires at least 512K of RAM (640K recommended), and a graphics video card such as Hercules, EGA, CGA or VGA. Supporting files and dictionaries are limited only by the capacity of your hard disk. A graphics printer is required for hardcopy output.

**Considering the amount of work and skill embedded in this program, the cost is not unreasonable.**

*TianMa 2*, the latest version, includes the ability to create your own graphic characters and requires a hard disk. The package costs $695. Owners of earlier versions can upgrade for $95 plus $10 shipping and handling. Considering the amount of work and skill embedded in this program, and the increased productivity it offers, the cost is not unreasonable. This product should be of interest to any PC user who studies or teaches Chinese, or does business with a Chinese-speaking market. (Arrakis Technologies, 1425 Dorchester West, Suite 300, Montreal, Canada, H3G1T7, 514/393-1818. Telex 055-62320; fax 514/397-1535.)

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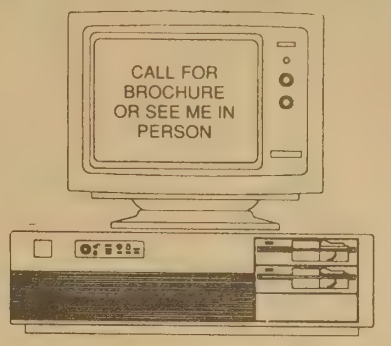


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The nicest feature of the Z-386 computer, other than 20MHz speed, is the speed-up memory above 640K. Here's where many Compaq clones missed the boat. Most of the 386 clones have 512K on board. But to expand the memory you need a 32-bit memory card, which doesn't exist yet. So you end up with 16-bit data transfer with D-RAM. Z-386 uses all of its memory on a special 32-bit memory card which comes with it. It is expandable up to 10MB of static RAM. Static RAM is much faster than D-RAM, and does not require a refreshing cycle which wastes CPU time. The extra 384K, other than 640K, can be used to speed up data I/O, or to relocate the EGA Bios into RAM for ultra fast drawing.

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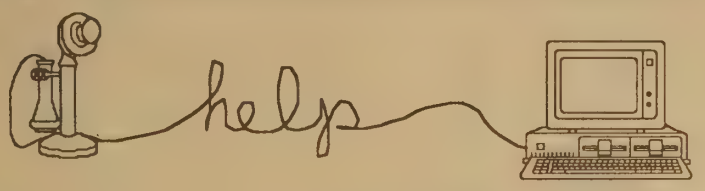


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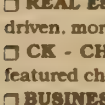
❒ **PRO PC-ACCT SYSTEM V3.0 (526)** - Menu driven; fully integrated G/L, A/R, A/P . On-screen help, etc. NEW..
❒ **LANDLORD V2.01 (585)** -Keeps track of rental activity. Menu driven. NEW..
❒ **SLICWORKS V1.0 (321)** - Framework clone. Integrated database, spreadsheet, word processor, & communications.
❒ **IN CONTROL V2.645 (174 & 175)** - (2 disk set) -The ultimate prospect/client/customer & activity tracking system. NEW
❒ **MANAGEMENT TOOLS (643)** - 10 programs for mgmt. & supervisors - a mini-mgmt. course. NEW..
❒ **FINANCE MANAGER V4.0 (77)** - Accounting package for business or personal finances. Double entry system.
❒ **FAST BUCKS V3.1 (191)** - Menu driven home finance package.



## COMMUNICATIONS

❒ **RBBS BULLETIN BOARD V16.1A (613 - 616)** - (4 disk set) Turn your computer into a RBBS. Industry standard. NEW
❒ **QMODEM V3.1 (293 & 294)** - (2 disk set) Full featured modem program.
❒ **PROCOMM PLUS TEST DRIVE V1.1 (504)** - Menu driven modem program; still one of the best. NEW..
❒ **BOYAN VD3 - (467)** - Modem program that has received great reviews by all.

## DATABASE

❒ **FILE EXPRESS V4.22 (33 & 34)** - (2 disk set) Menu driven database; report generator, many features. NEW
❒ **WAMPUM V3.2B (37 & 38)** - (2 disk set) Menu driven dBase III clone. Knowledge of dBase suggested. NEW..
❒ **PC-FILE + V2.0 (493 - 495)**- (3 disk set) Full-featured database; help screens, menus, macros. One of the best.
❒ **dGENERATE V1.0 (511)** - Screen & source code generator by Tom Rettig. dBase III required.

## EDUCATION

❒ **COMPOSER (3)** - Create, save, edit, play, & print your music. CGA required.
❒ **LETTERFALL V1.1 (119)** - Improve your touch typing skills; 16 levels.
❒ **BEGINNING SPANISH (121)** - Teaches vocabulary, phrases, etc. Basic required.
❒ **THE WORLD 3D (127)** - Display maps of the world. CGA required.
❒ **FUNNELS & BUCKETS V 2.0 (130)** - Great learning game; add, subtract, multiply, & divide. Ages 5 - 10.
❒ **ERYN'S ABC'S (131)** - Teaches alphabet & numbers. Computerized Etch-a-Sketch. Ages 2 - 6. Basic required.
❒ **MATH-WHIZ (188)** - Teaches various math operations. Ages 5 and up. You choose the level. Basic required.
❒ **AMY'S FIRST PRIMER (133)**- Alphabet, numbers, counting, shapes, matching, etc. Ages 4 - 8. CGA & Basic req.
❒ **PLAY 'N LEARN V2.01 (624)** - Contains 7 games designed for kids up to 4 years old. CGA required.
❒ **SPELLING BEE (138)** - Grades 1 - 12. CGA & Basic required.
❒ **ALGEBRA TUTOR (577)** - Teaches various operations of algebra. NEW..
❒ **ANIMAL MATH/MOSAIC (181)** - Count objects & graphic learning tool. Ages 4 & up . CGA required.

## EGA / VGA PROGRAMS

❒ **EGA RISK (216)** - The game of world domination. Superb graphics.
❒ **EGA UTILITIES/1 (260)** - EGA demos, change fonts, palette setting, etc.
❒ **ALDO'S ADVENTURE (605)** - Graphic advneture game. Watch out for those falling barrels... NEW..
❒ **VGA CAD V1.4 (584)** - A painting/graphics editor/CAD program. NEW..

## GAMES

❒ **SLEUTH V4.1 (69)** - Murder mystery game similar to the board game "CLUE".
❒ **BLACKJACK (95)** - Advanced blackjack game with tutor, multiple players. Best one yet. CGA or Hercules.
❒ **MONOPOLY V6.7 (106)** - Just like the board game, 2 to 4 players. CGA req.
❒ **DND V1.1 (205)** The Classic Game. Inspired by Dungeons & Dragons. CGA req.
❒ **LAS VEGAS (116)** - Craps, Roullete, Poker, & more. CGA req., Basic on some.
❒ **3D CHESS V1.01 (215)** - Excellent chess game. Switch between 2D & 3D.
❒ **SAM SPADE V1.0A (226)** - Great detective game. CGA required.
❒ **SOLITAIRE (211)** - 4 different games. Nice graphics. CGA required.
❒ **SUPER PINBALL (212)** - 5 different games. CGA required.
❒ **WORDPLAY (367)** - Wheel of Fortune clone. You provide the prizes. CGA req.
❒ **HANGMAN (91)** - 2 versions of the ever popular game & learning tool. CGA req.
❒ **DIGITAL LEAGUE BASEBALL (344)** - Pick your team & players. CGA required.
❒ **MINIATURE GOLF (505)** - 18 hole golf course with graphics. CGA required.

## GRAPHICS

❒ **FINGERPAINT V2.0 (282)** - Paint program, easy to use. NEW
❒ **PRINTSHOP GRAPHICS / 1 (320)** - 3 more libraries of graphics for Printshop.Requires Printshop.
❒ **PRINTMASTER GRAPHICS / 1 (319)** - 3 libraries of graphics for Printmaster Plus. Requires Printmaster Plus.
❒ **PRINTMASTER GRAPHICS / 2 (549)** - Over 150 graphics for Printmaster Plus.
❒ **PRINTMASTER GRAPHICS / 3 (550)** - Over 150 graphics for Printmaster Plus.
❒ **PC-KEY-DRAW V3.33 (534-536)** - (3 disk set) - Combines features of a CAD & paint program for power/flexibility. NEW
❒ **DANCAD 3D V2.0E (424 & 425)** - (2 disk set) Advanced 2D/3D drafting program. Stereoscopic 3D wire frame animation. 512k req. NEW..
❒ **CITY DESK V6.0 (197)** - Desktop publisher with graphics capability.

## LANGUAGE

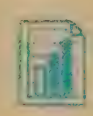
❒ **TURBO "C" TUTOR (489 & 490)** - (2 disk set) 14 lesson tutorial : learn to program in "C" language.
❒ **"C" LANGUAGE V2.1 (299 & 300)** - (2 disk set) Complete programming environment. Source, compiler, samples.

## NOVELTY

❒ **STRESS & SHRINK (74)** - Stress - stress test. Shrink - personality analysis.
❒ **HORSERACING (343)** - Handicapping for thoroughbreds.
❒ **FAMILY TIES V1.15 (154)** - A genealogy program for the amateur or pro.
❒ **ASTROLOGY V9.5 (284)** - Read your own chart from stars, moon, etc.
❒ **LOTTO # GENERATOR (159)** - Win big $$$. Current data thru August. NEW.
❒ **FREEWILL V1.0 (171)** - Valid WILLS for California. Easy to fill in.
❒ **G.I.F.T.S. (618)** - Gift ideas for any occasion; Christmas is coming... NEW..
❒ **BIORHYTHM (194)** - Calculate & print your own monthly charts.
❒ **TENANTS RIGHTS (196)** - The 'Bible' for California renters. **A MUST.**
❒ **PC-BARTENDER (619)** - Recipes for approx. 200 drinks. Search by drink, ingredients, adjust sizes, etc. NEW..
❒ **WEIGHT CONTROL (586)** - Get rid of those unwanted inches / lbs. NEW..
❒ **AIRPLANES (398)** - Print paper airplanes, fold-em and let 'em fly. Basic req.
❒ **EDNA'S COOKBOOK (566)** - Record, file, list, & print your recipes. NEW..

## PRINTER UTILITIES

❒ **LQ V2.26 (509)** - Produces high quality text on dot matrix printers. Multiple fonts with print spooler. NEW..
❒ **LASERJET FONTS/I (327)** - 30 + downloadable fonts for Laserjet Plus/II.
❒ **LASERJET FONTS / II (471 & 472)** - (2 disk set) More downloadable fonts for HP Laserjet Plus/II. Helvetica, Script, etc.
❒ **ON-SIDE (560)** - A sideways printing program with multiple fonts. NEW..



## SPREADSHEET

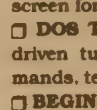
❒ **PC CALC + V1.0 (537-539)** - (3 disk set) Complete Spreadsheet program. NEW
❒ **GOAL SEEKER (556)** - Define your "goal" & the program will do the necessary calculations. Great... NEW.
❒ **LOTUS 123 TUTOR (177)** - Beginning tutorial for Lotus 123. Various worksheets. Requires Lotus 123.
❒ **AS EASY AS V3.0 (302)** - Lotus clone. 52 column sheet, graphing, supports functions of 123, "WK1" files, etc.

## UTILITIES

❒ **DISK COMMANDO V2.0 (218 & 219)** - (2 disk set) Norton Advanced Utilities clone. Too many features .
❒ **SIM-CGA (220)** - Great for most programs that need color (CGA) to run.
❒ **DOS HELP FOR VER 3.3 (255)** - Help screen for DOS commands. NEW..
❒ **DOS TUTORIAL V4.4 (256)** - Menu driven tutorial that teaches DOS commands, terms, etc. A MUST. NEW.
❒ **BEGINNERS (257)** - The basics of using most public domain/shareware software. ❒ **LIST V6.2A (274)** - Best utility for viewing documentation or any ASCII file.
❒ **POWERMENU V3.1 (419)** - Menu program for your hard drive. Excellent.
❒ **PC-DESKTEAM V1.03 (278)** - Sidekick like utility plus more features.
❒ **AUTOMENU V4.01 (280)** - Excellent menu program for your hard drive.
❒ **VACCINE / FLU-SHOT (541)** - Various programs to protect againt "trojan horses" & the "virus". NEW.
❒ **HOMEBASE V2.5 (528-530)** - (3 disk set) - Great desktop organizer; editor/word processor, cut & paste, calendar/appt. book, & many more. NEW..

## WORD PROCESSING

❒ **MASS APPEAL V3.0 (630)** - The ultimate mailing list manager... NEW
❒ **PC-WRITE V2.71 (9 & 10)** - (2 disk set) Full featured word processor; all the features of the expensive one's.
❒ **LETTERHEAD (69)** - Create and print your own letterhead on letters and envelopes. IBM/Epson comp. printer req.
❒ **GALAXY V2.3 [11]** - Easy to use word processor; menus & quick keyboard commands. Lots of features.
❒ **PC-OUTLINE V3.34 [7]** - Windowing outline editor / thought organizer. Does main topics / subtopics, etc. NEW..
❒ **WORDPERFECT MACROS FOR V5.0 [189]** - Contains over 80 macros. NEW..
❒ **PC TYPE + (373 - 375)** - (3 disk set) A powerful word processor with full screen editing, mail merge, 100,000 word dictionary, on-screen help, etc. Buttonware.



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BY MARY EISENHART

# The All-New, All-North User Group Column

Yes, folks, in the interest of bringing you more news from closer to home, this column will now take a more localized approach to reporting on user group and BBS activity. So if your group's planning a seminar, swap meet, disk exchange, EPROM burn or other exciting event, send us the word. Preferably as far in advance as possible, deadlines being what they are.

The last few months have been a flurry of social activity for denizens of **The WELL**, our conferencing system of choice. August found a large throng camped out at **Kevin Rardin**'s house in La Honda, listening to Irish music and swapping stackware, and September brought the annual solstice picnic at Muir Beach, where, by all accounts, a splendid time was had by old and young. Also on the WELL these days, **John Coate** continues his autobiographical tales of commune life in the '60s in **True Confessions**, heated discussions of Apple's price increases liven up the **Macintosh** conference, and, in the **Deadplan** conference, the **Minglewood Town Council**, an ad-hoc community action group of Deadheads, plans socially useful activities. And don't forget, the WELL also has a **MicroTimes** conference, which eagerly awaits your input. To join the WELL, use your modem to call (415)332-6106 and follow the prompts to register. If you'd like to talk to a real person first, call the aforementioned John Coate at (415)332-4335 during business hours.

Aficionados of **Revelation Technologies** software will be glad to learn that it's almost time for **Revfaire88**, which takes place on Friday, October 21st from 9 am to 6 pm at the Hyatt Regency-Embarcadero Center in San Francisco. Various presentations will be offered on the fine points of the software, and many vendors of Revelation-based products will be on hand with their wares. If you're interested, call **Margaret Steyer** at Revelation Technologies, (415)986-1717.

Our mailbox has been inundated with communiques from various professional organizations lately. From our friend **Nancy Comstock** comes news of the **Mt. Diablo Technology Association**, the new improved version of the erstwhile **Mt. Diablo Computer Industry Association**. It's a non-profit network of technology-based businesses and professionals in Contra Costa and Alameda counties. According to its literature, its purposes are "to explore common concerns in the industry and educational developments; to foster customer, supplier and partnership contacts among industry members; and to enhance the growth of the Mt. Diablo Valley as a regional technology center." Monthly meetings will address issues from "Alternatives in Financing" and "International Trade Issues" to Desktop Publishing and Electronic Mail. Nancy is the secretary/treasureR of the organization, and advises interested parties to call Executive Secretary **Deborah Scott** at (415)932-4828 for more information. Lunch and dinner meetings take place at Michael's Restaurant, 1536 Newell Avenue in Walnut Creek, and reservations are required.

In Piedmont, the **High Tech Entrepreneurial Council** meets monthly, usually at the Piedmont Community Center, 711 Highland Avenue, usually on third Wednesdays. Their meetings also include dinner, for which reservations are highly desirable.

The group, according to its literature, is "a non-profit corporation dedicated to providing software developers and other high technology entrepreneurs with a forum for developing marketing strategies, building business relationships and exchanging experience and information." If this sounds like something for you, give **Rachel Munoz** a call at (415)339-3895.

**Donald L. Nelson** of San Jose writes to tell us about **High Tech Gays**, a professional organization for gay people in the high technology industry. Says Donald, "High Tech Gays was started by a small group of gay people who wanted to let the world know there were people like them working in the high tech industry. From humble beginnings, HTG has grown from a membership of 12 to nearly 500 in the five years it has been in existence. The group's main focus is on social and political activities. Social events include theatre trips, camping, bicycle trips, whitewater rafting and many more. Politically, HTG is very active, having been involved in the Stop LaRouche campaigns and the upcoming No on 102 campaign. HTG has also been involved in legal actions regarding gay people acquiring security clearances. Through its political action committe, HTG has attempted to persuade high tech companies in the south bay to include sexual orientation in their non-discrimination policies."

HTG's meetings are held monthly in San Jose. The club also features its own BBS at (415)572-9594, 300/1200/2400, 7-E-1. If you'd like more information on HTG, call its voicemail number at (408)993-3830.

**Tina Bowman** from CYMA/McGraw-Hill would like to announce the formation of the **CYMA/McGraw-Hill Users Group**, which offers advice and support to users of McGraw-Hill accounting software. The next meeting will be held on Monday, October 24 from 3 to 5 pm at the McGraw-Hill Publications Building, 425 Battery Street in San Francisco. There's a $5 donation, and you can call (415)839-7466 for reservations or further information.

The **Microsoft Word Users Group** of the **Silicon Valley Computer Society** will feature a presentation by **Linda Cavenaugh** of **Softcraft** at its October 24 meeting. Ms. Cavenaugh will be demonstrating Softcraft's fonts for laser and dot matrix printers. At the November 28 meeting, **Microsoft** will regale the assembled throngs with demonstrations of *Word*, *Windows*, *Presentation Manager* and *OS/2*. If you'd like information about meeting times and locations, please call **Bill West** at (408)356-8805.

The ubiquitous SVCS has recently abandoned its all-Intel bias in favor of a new SIG—**Macintosh**. Dennis Dawson of Arthur Young and Co. is the SIG's president; he says "The Macintosh is a computer for everyone: beginners, power users and developers. We are building a cooperative atmosphere which will allow new users to quickly improve their skills, while they provide valuable insights to programmers on questions of interface and ease of use." Meetings will be held in the 6th floor offices of Arthur Young in the Mitsubishi/Plaza Bank Building; for dates and time, call Dennis at (408)947-5550.

We've also received quite a bit of mail from some of our veteran correspondents this month. **Michael Albright** of San Ramon wants to pass the word that the **Tri-Valley Macintosh User's Group** has changed its meeting location to 4695 Chabot Drive, Room 114, in the Hacienda Business Park in Pleasanton. Meetings are on first Thursdays at 7 pm, and if you'd like more info, give Mike a call at (415)838-6165 during the day.

**Roel Sarceno** of Redwood City, who's been sending us listings for his **Video ViSion BBS**, wants us to know that the board has a new number (415)785-8085. Roel says that thanks to the help of his users he's been able to upgrade his system considerably, and invites you to check out the new improved Video ViSion.

The news isn't quite so good from **Otto Haiungs** of Roseville, who regretfully informs us that the **Roseville Apple Core** is no more, having merged with the **Apple SAC** group in Sacramento. Otto himself, however, continues to be active in NABVICU, the **National Association of Blind and Visually Impaired Computer Users**, and operates **CompuHelp**, a 24-hour database BBS for the blind and visually impaired community. CompuHelp can be accessed at (916)783-0364, and you can find out more about NABVICU by writing to PO Box 1352, Roseville, CA 95661-1352.

Those of you who remember the undeservedly short-lived Mindset Computer with fondness will probably be glad to know that there is, indeed, a club for Mindset users in the Bay Area. The **San Francisco Mindset Users Group** meets on second Thursdays at 7 pm, according to the cryptic and anonymous message we recently received. However, our reticent correspondent did leave a phone number (415/626-4240), so call if you'd like information and/or support for this aging beauty (the graphics on this machine were pretty dazzling compared to its contemporaries, a few short years ago).

One more BBS: **Bill Maginnis**, who runs **The Billboard BBS** in Concord, invites interested Macintosh users to call in. The board operates 24 hours a day, seven days a week, at 300/1200, 8-N-1;

it supports XModem and XModem MacBinary file transfers and offers conference areas and private email. Currently the board offers Mac-only files, but Bill is hoping to get a large hard disk, which will enable him to offer Apple II files as well. Says he, "The Billboard is the only Mac-oriented BBS in the Contra Costa county area. I am currently requesting donations from callers for the **Hard Disk 80 Club** (not affiliated with the **700 Club**!)—we hope to raise funds to purchase an 80 to 100Mb hard disk for further expansion to the system." Check it out at (415)686-4338.

That's about it for this month—keep the information and updates coming. US Mail should be directed to User Group Network, 5951 Canning Street, Oakland, CA 94609. Email can be directed to **microx** on the WELL (415/332/6106); those who frequent usenet can send us mail at **{pacbell, hplabs, ucbvax, apple}!well!microx.** Thanks again, and we'll be back with more next month.

## *USER GROUPS*

### INTERNATIONAL

**Cassia Express.** (065) 344-9163. 300/1200/2400 24 hrs. Singapore. Sysop: N.M.Rahman

**FidoNet Argentina (054).** (011) 541-22-419. 8-N-1 3 PM-11 AM PST. The 1st fido node in Argentina has over 450 subscribers. Specializes in issues from S.A. PD software library to d-load. Sysop: Pable Kleinman

**Remote Bulletin Board (Singapore).** (065) 445-1646. 9600/2400/1200 24 hrs. 218 MB Online (IBM upload/download). Sysop: Umar A. Rahman

### 203

**Terrapin Station.** (203) 656-0134. Grateful Dead Board. Sysop: Klaus and Gretchen Bender.

### 209

**Bertha Board BBS.**(209), 239-9853, 300/1200/2400, 8-N-1, 24 hrs. MS-DOS, others. 95 Mb online. Emphasis on programming. Uploads and downloads. No fee but registration required. Sysop: Kenneth Roach.

**Oasis Software Library.**(209), 823-2803, 300/1200/2400, 8-N-1, 24 hrs. Shareware and PD for IBMs and compatibles. No fee but registration required. Sysop: Tim Campi.

**Silicon Realms.** (209) 754-5530. 300/(1200 Soon) 9:30AM to 6:30AM.Formerly Motherload 64. Commodore, PET & Plus/4. Programmers board, Continuing & Short Story boards, FRPG. Sysop: Joe Commodore

**SMERDON'S CASEL (California Attractions, Sights and Entertainment Listing),** (209) 521-4910, 8-N-1, 24 hrs., 300/1200/2400. Information on over 700 things to do and see in California. Free. Sysop: Sharon Smerdon.

**The Backdoor BBS.**(209), 952-9430, 300/1200/2400, 8-N-1, 24 hrs. MS-DOS oriented board. Lots of software, online chess game, much more. Sysop: Randall Fox.

### 212

**Lawyers Linked by Modem.** (212) 766-3788. Three hundred registrants. A BBS for law-related material. Sysop: Rees Morrison.

**RadNET OnLine Services** 24 hrs. Online computer network for Nuclear Medicine professionals. Offered through Compuserve. Regular on-line conferences. Call for information and registration. Voice phone: (212) 856-6449.

### 213

**Ashton-Tate Support.** (213) 538-6196. Free technical support, answers to questions about Ashton-Tate software products.

**Backroom BBS,** (213) 420-7620, 8-N-1, 24 hrs., 300/1200/2400/9600. Very Mac, also Apple II and MS/DOS. Direct access to Applelink, but not by user.

**Beaver Creek.** (213) 437-1410. 8-N-1 All but 4-9 PM. Sysop: John Campbell

**Beta RBBS.** (213) 393-9777. 1200/2400. Free entertainment BBS. Audio, video, DJ, music, movies, news and discussions. Sysop: Jason Lin.

**Career-Point Information (CPI),** (213) 423-4999, 24 hrs., 10 lines on rotary. CD-ROM, INFO-MAT Magazine, USA TODAY, Writer's Board, Online Shopping and CHAT. "Where the professional & BBSing come together!" Over 1400 active users. Sysop: Mark E. Bishop. Voice: (213) 428-0363.

**Chat Line.** (213) 534-4311. Multi-line, Multi-user interactive group & private forums. Downloads, Database.

**David's Amazing BBS.** (213) 459-5891. Conferencing (like the Well, but easier to use). Electronic bar; talk; matchmaking; 5 lines; unique software. Sysop: David Dennis

**Dial-Your-Match.** (213) 461-9899. Hollywood. (213) 467-6776. Hollywood. (213) 539-2448. Lomita. (213) 633-4349. Downey.

**Easy Reader Electronic Edition.** (213) 372-4050, 8-N-1. Free online publication. Includes movie times, editorial, 500 new classifieds each week and more. Online ordering of classifieds and letters to the editor allowed. Sysop: American TeleWeb.

**Graphic Encounters BBS.** (213) 439-9000. 8-N-1, 24 hrs., 300/1200/2400. First logon requires password "computer." Email, MIS employment, graphics, CHAT, technical information, Oracomm, Sysop Corner. Operating 6 lines. Sysop: Bill Bloomer. Voice: (213) 439-3135.

**Grey Matter BSS & RCP/M.** (213) 971-6260. 300/1200/2400 24 hrs. Televideo and Timex/Sinclair support. Sysop: Ed Grey.

**Hughes Jobs.** (213) 372-4050, 8-N-1, 24 hrs. Job opportunities at Hughes, support systems in Long Beach. Type GO HUGHES upon entry. Sysop: American TeleWeb.

**ICN.** (213) 204-0646. 2400/1200/300 24 hrs. The place to buy/sell/trade collectibles (stamps, books, etc.)

**Information Symposium.** (213) 258-5086. 300/1200/2400 8-N-1 24 hrs. Serving the Info. Professional, Tech. Info, M.I.S. Employment. MS-DOS; OS/2; graphics. Password req'd for access is "Micro." Sysop: William Bloomer.

**LAAUG-LINE,** (213) 559-7367, 24 hrs. Bulletin board of the Los Angeles Amiga Users Group. All Amiga owners are invited to join in the message base. Only LAAUG members may download files. Sysop: Gary Woolard.

**Loan Master BBS.** (213) 372-4050, 8-N-1. Daily mortgage rates for those purchasing a home or refinancing. Type GO LOAN upon entry. Sysop: American TeleWeb.

**Lynzie's Motherboard.** (213) 650-0519. 300/1200/2400/9600 8-N-1 24 hrs. Matching, group and private chat system, local social events. W. Hollywood. Sysop: Lynzie Flynn. Also: (213) 650-6172., 659-1982.

**Multiversal Trading Company (213) 438-0039, 8-N-1, 300/1200. Run by Dragon Tree Press for fans of Arduin** Grimoires and World of Delos/Amazon Mutual. Free, open board. Online ordering service and catalog of FRP playing aid books. Fanzine features and online fantasy games to be added later. Sysop: Mary Ezzell.

**Oil Patch PC Board.** (213) 427-5980. 300/1200 8-N-1 Eves. only. Exclusively C. Libraries; utilities; source code; tutorials. Sysop: Rick Shoop

**On The Water Front,** (213) 306-2581, 8-N-1, 24 hrs., 300/1200/2400. Programmers Clipper conferences and files, dBase, C, Lotus, etc. Free. Sysop: Bill Bird.

**Online Goldmine.** (213) 860-5649 for 300/1200; (213) 860-3570 for 1200/2400. 7-EVEN-1 24 hrs. Classifieds, electronic yellow pages, messaging, trivia


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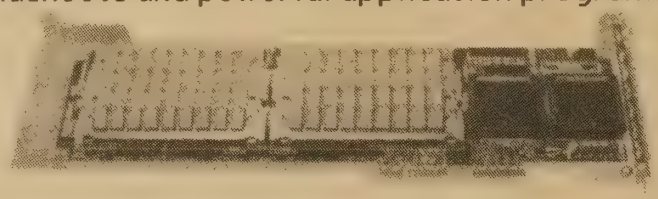

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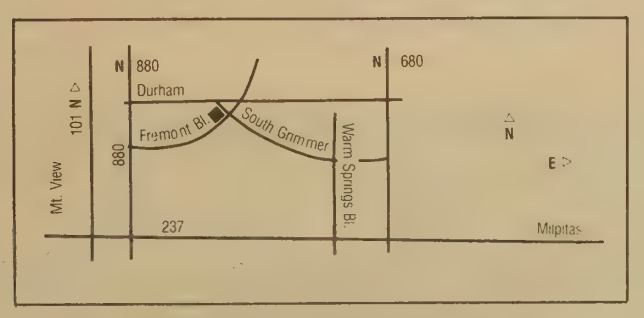


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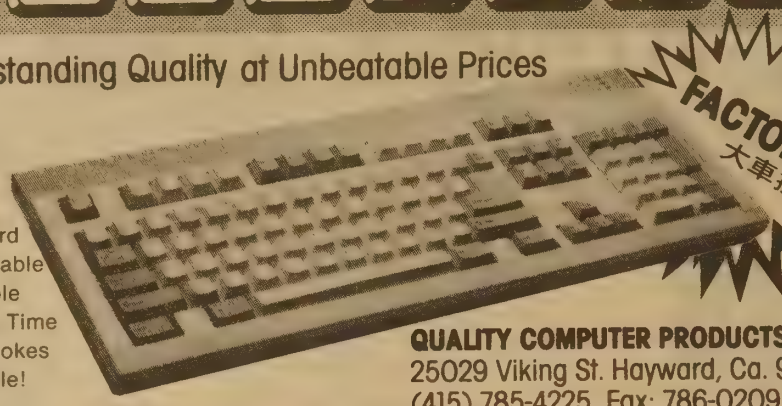

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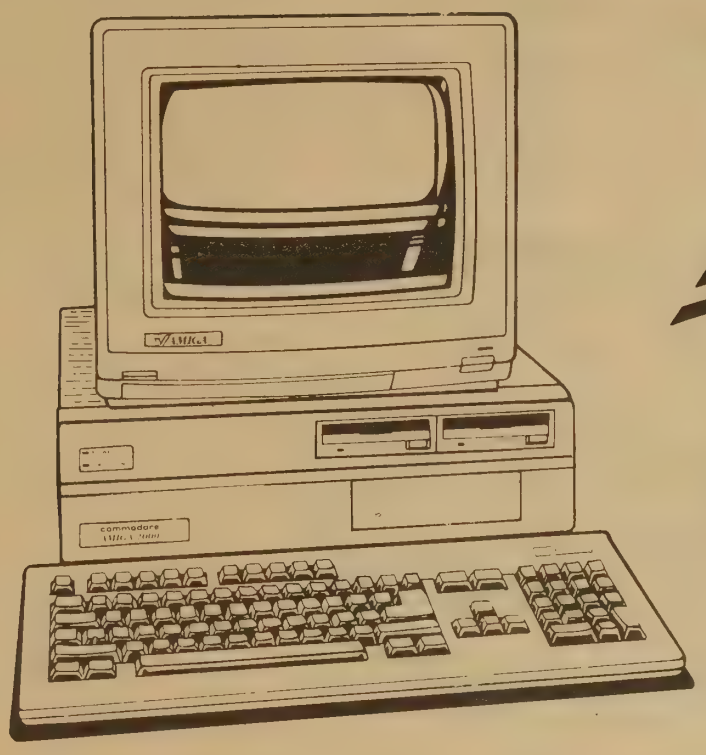

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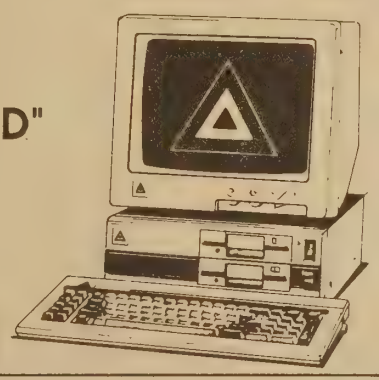

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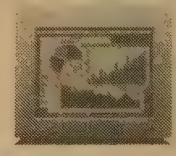

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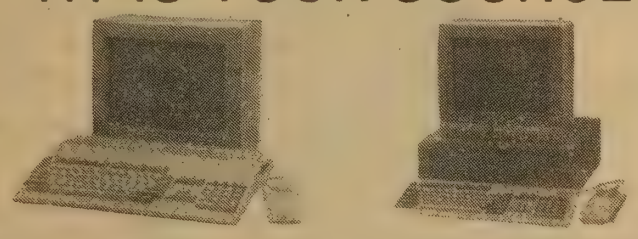

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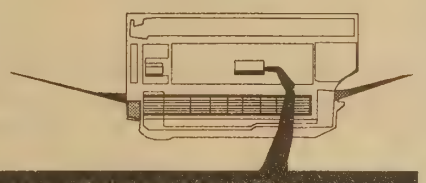

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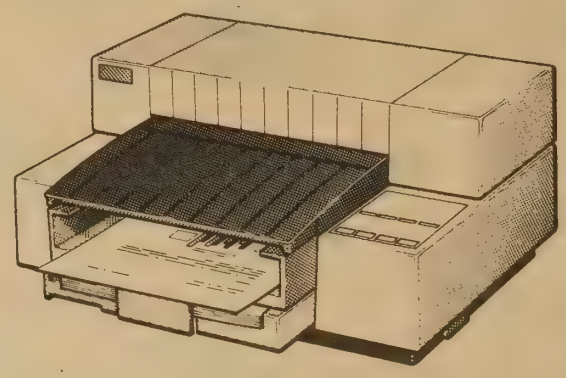

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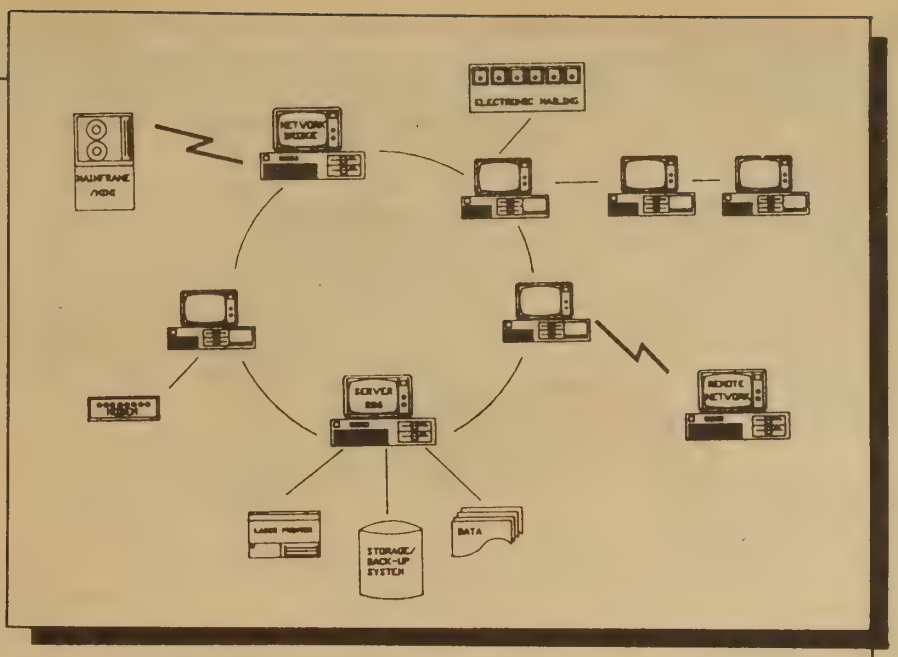


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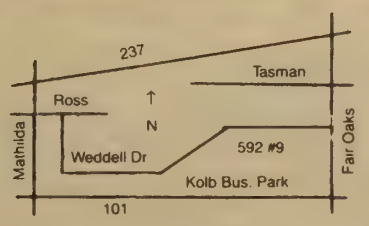


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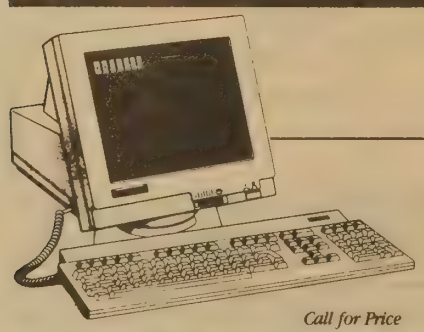

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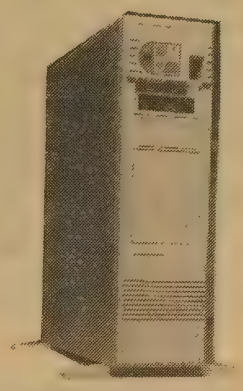

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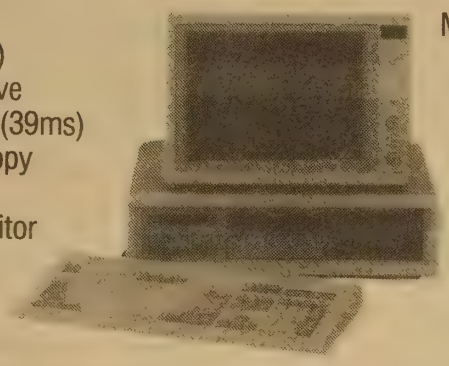

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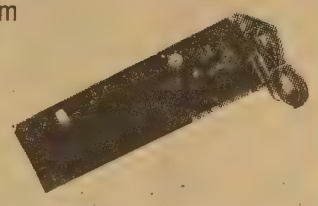

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## *ASSOCIATIONS*

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**ANImated People User's Group** In the spirit of Max Headroom and "Hitchhiker's Guide," we're attempting computer digitization/animation of real-people personalities. San Jose. Call: Tom, (408) 226-9225.

**Artificial Intellegence Special Interest Group.** Meetings: 2nd Thurs. Engineering 101,Santa Clara University. Independent nationally recognized group studying and developing AI and artificial neural networks. Call Kent Byron (408) 244-8739 for info.

**Artificial Intelligence Special Interest Group (AISIG).** Call Rita Zokaei, (415) 574-8225.

**Association for Women in Computing.** Meetings: 1st Wednesday of each month, 6:30 PM, Stagecoach Restaurant, 44 Montgomery St., San Francisco. Call 655-3110 for information.

**BAY HPX.** Meetings: 2nd Saturday Laptop & handhelds. Call Jim Horn or Michael Felsenstein: (707) 794-3130/(415) 564-8279.

**Bay Area CYMA Dealers Association.** Meetings: 2nd Tuesdays, Thursdays; 4:30-6:30 pm, San Mateo. Networking and support for McGraw-Hill accounting software consultants and retailers. Call: (415) 345-5955.

**Bay Area Desktop Publishing User's Group.** Meetings: Tues. 6-8 PM Norman's Restaurant, 3204 College Ave., Berkeley (Corner of College and Alcatraz. For more info call Dr. C.J. Wallia at (415) 848-8200.

**Business Computerization User Group.** Group forming. Write 6938 Buckingham Blvd., Berkeley, CA 94705, or call (415) 848-2080.

**California Genealogical Society Computer Interest Group.** Meetings: 2nd Sat.- odd months Genealogical Society Library, San Francisco.

**COBOL And SQL Users Club** Call: Dr. Badshah K. Mian, (415) 337-1787.

**Computer Associates Users Group** Meetings: 3rd Wednesdays. Gateway Holiday Inn, San Francisco. Call: J.C. Lukrich & Co, (415) 864-6770.

**Computers & Law Assoc.** Meetings: McGeorge School of Law, 3200 Fifth Ave., Sacramento, CA 95817.

**CYMA/McGraw-Hill Users Group Meeting.** Meetings: Monday, October 24, 3:00-5:00 pm, McGraw-Hill Publications Building, 425 Battery St., San Francisco. Meet CYMA professionals and learn how to get the most from your software. Call: (415) 839-7466.

**Entrepreneurial Support Group. CEO.** Meetings: SASE, P.O. Box 2781, San Rafael, CA.

**High Tech Gays.** Meetings: 2nd Sundays, Part of the National Gay & Lesbian Task Force. Call: (408) 993-3830.

**High Technology Entrepreneurial Council.** Meetings: Wednesdays, 6:30 pm, Piedmont Community Center, 711 Highland Ave., Piedmont. HTEC is a nonprofit corporation dedicated to providing software developers and other high tech entrepreneurs a forum for developing marketing strategies, building business relationships and exchanging experience and information. Call: Rachel Munoz, (415) 339-3895

**MIDICRUZ Computer and Music Users.** Meetings: 1st Thurs., 7:30 PM, 200 Seventh Ave., Suite 225, Santa Cruz, CA 95062. Contact Robert at (408) 476-8464.

**MORE: Modemusers Of The Redwood Empire.** Meetings: Thurs. July 14; Fri. Aug. 9; 7 PM, Roundtable Pizza, Highway 12 @ Stony Pt. Free membership for modemers who want to get together and talk about local boards. Includes novices to techno-wizards. Call (707) 546-5203.

**Mt. Diablo Technology Association.** First meeting: Wednesday, Sept. 14. Others monthly at Michael's Restaurant in Walnut Creek. Lunch and evening meetings, send for calendar. Back by popular demand. Will explore common concerns in industry and educational developments. Call: Deborah Scott, (415) 932-4828

## *USER GROUPS*

### AMIGA

**ACCESS (The Amiga And Commodore Computer Enthusiasts Society).** Meetings: 3rd Tues. 7:30 PM Community Room of Homestead Savings & Loan, 999 E. Stanley Blvd., Livermore, CA. Contact Ron Kremkow at (415) 449-1784.

**Amiga Addicts Anonymous.** Meetings: Newsletter, public domain library, demonstrations. Write PO 4669, Walnut Creek, CA 94596. Call: 689-3453

**Amiga East Bay Info Exchange (AEBIE).** Meetings: 2nd Tues. 7 to 9 PM 11185 San Pablo Ave., in El Cerrito. Write to P.O. Box 485, Pinole, CA 94564.

**ASCITEC: The Amiga Science & Technology Users Group.** Meetings: 2nd Thurs. 5-7 PM Lockheed, B/157, Rm. 4-C, Sunnyvale, CA. Scientific/Video Applications. Classes available.

**AUGment - Amiga Users Group of Silicon Valley.** Meetings: 2nd Fri. Write to P.O. Box 1863, Fremont CA 94538 for more info.

**Bay Area Amiga Developers Group (BADGE).** Meetings: 3rd Thurs. 8 PM Turing Auditorium, Stanford University, Stanford, CA. For all Amiga programmers. No membership fee.

**CWEST Bay Area Commodre Users Group.** Meetings: Third Thursdays, 7:00 PM, Embarcadero YMCA, between Mission & Howard. Support C-64/128 and Amiga. New Users welcome. Write PO 146731, San Francisco, CA 94114-6731.

**Northern California Amiga Club.** Meetings: 2nd. Sat. 1:30 PM Business Incubator, 4311 Airport Rd., Redding, CA. $15/yr., monthly newsletter, access to PD disk library, SIG's & support.

**SMAUG (Salinas-Monterey Amiga Users Group).** Meetings: 3rd Tues. at 7 PM, Seaside Library, 550 Harcourt Ave., Seaside, CA. Write PO 776, Castroville, CA 95012 for call Richard Binsacca at (408) 678-2518.

**SVAUG-Scotts Valley Amiga Users Group.** Meetings: 2nd Thursday, 7:00 PM. The Computer Room, Kings Village, Scotts Valley.

**Vallejo AMiga People (VAMP).** Meetings: 2nd Tues. 6:30 PM Software 1st, Vallejo Corners Shopping Center. Contact Bill Braun at (707) 554-0263.

### AMSTRAD

**North American Amstrad Users Group (NAAUG).** National User group. For info send S.A.S.E. to NAAUG, P.O. Box 2178, Ferndale, WA 98240.

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### APL

**APL Bay Area Users' Group.** Meetings: 2nd Monday, 6:30 PM, I.P. Associates, 425 Sherman Ave., Suite 200, Palo Alto.

### APPLE

**A.P.P.L.E. Co-op.** Meetings: National User Group. Call-A.P.P.L.E. Magazine. Write: 290 S.W. 43rd Street, Renton, WA 98055. Or call (206) 251-5222 for more info.

**Apple Pickers of the Redwood Empire.** Meetings: 2nd Sat. 10 AM Santa Rosa JC, Shuhaw Hall, Rm. 1735. Call for sample newsletter. (707) 763-8322.

**B.E.A.R. Apple II National Users Group.** Meetings: send S.A.S.E. to B.E.A.R., 4719 Meridean Ave. #401,San Jose 95118. Printshop & Appleworks files, monthly newsletter.

**Diablo Valley Apple Users.** Meetings: 1st & 3rd Fri. 7 PM Willow Creek Ctr., 1026 Mohr Lane, Concord, CA. SIG's meet monthly. Featuring library of pub. domain software & club's DOM's. Newsletter, demos, group buys hard/software.

**GravenStein Apple IIGS Users Group.** Meetings: 3rd Saturdays, 10:00 AM, Coddingtown Mall, Santa Rosa. User group to explore new and existing programs and uses for the IIGS, to order equipment and material as a group for quantity discounts and to encourage the use and development of the IIGS among current, new and potential users. Call: Aaron Lamar, president, 938-8479.

**San Leandro Apple User Group.** Meetings: 1st Thursdays, San Leandro HS, Rm. 213. New owners to experienced users welcome. AppleWorks, software and telecommunications SIGs meet monthly. Call: (415) 483-6046.

**The Apple Core.** Meetings: 3rd. Saturdays. Daly City Library, Serramonte Branch. Call: 771-5830.

**Tri Valley Apple II Users Group.** Meetings: 1st Thurs. 6:30 PM. Call Esther Farnstrom at (415) 829-3672 or Dan Balsey at (415) 828-6237 for meeting location.

### ATARI

**Bay Area Atari Users Group (BAAUG).** Meetings: 1st Mon. 7:00 PM Bracher School, corner of Bowers and Chromite, Santa Clara. ST users meet at Bracher on 2nd Tuesdays. 8-bit users meet at H-P, Wolf and Pruneridge, Cupertino. BBS: (408) 247-1257.

### AT&T

**Bay Area AT&T PC Users Group - South Bay.** Meetings: 2nd Wed. 6:30 PM AT&T Bldg., 1090 E. Duane, Sunnyvale, CA. Call: Joe Lipsig (408) 733-6522. BBS: (408) 462-6329.

**Bay Area AT&T PC Users Group.** Meetings: 1st Wed. 6:30 PM Alternates between Oak. & SF, Call: Joe Mahoney (415) 586-8376. BBS: (415) 829-6027.

### AUTOCAD

**San Francisco/Marin AutoCAD Users Group.** Meetings: 2nd Tuesday evenings. $20 annual membership fee & newsletter. For further info, call Volker, 331-9466, or Virginia 777-4025.

**Sonoma County AutoCAD Users Group.** Call (415) 777-9144 for info.

### COMMODORE

**ACCESS (The Amiga And Commodore Computer Enthusiasts Society).** Meetings: 3rd Tues. 7:30 PM Community Room of Homestead Savings & Loan, 999 E. Stanley Blvd., Livermore, CA. Contact Ron Kremkow at (415) 449-1784.

**Campbell Chapter of 64/More Commodore UG.** Meetings: 4th Tues. BBS (408) 946-6154.

**Commodore 64 Software Users Group For New Commodore Owners.** One-on-one help for new owners. Meeting place & time TBA by members. Call (714) 531-2977 for info.

**Commodore Connection Users Group.** BBS (415) 458-1005.

**Cupertino Chapter of 64/More Commodore UG.** Meetings: 3rd. Sat.BBS (408) 946-6154.

**CWEST Bay Area Commodore User Group.** Meetings: 3rd Thurs. Embarcadero YMCA, between Mission and Howard. Supports C-64/128, Amiga. Write P.O. Box 146731, San Francisco, CA 94114-6731.

**Diablo Valley CUG.** Meetings: 2nd Thurs. 7:30 1331 Concord Ave. For info write: Box 27155, Concord, CA 94527. Or call (415) 932-2413.

**F.U.N.H.U.G. - Fremont, Union City, Newark, Hayward User Group.** Meetings: 3rd Thurs. 7:30 PM Newark Public Library, 6300 Civic Terrace Ave., Newark, CA. A user-organized, user-operated user group not affiliated with any computer or software manufacturer or distributer.

**Fairfield Commodore User Group.** Meetings: 1st & 3rd Mon. Solano County Education Bldg. Write to P.O. Box 2778, Fairfield, CA 94533-9998 for info.

**Mother Lode Commodore Users Group.** Meetings: 2nd & 3rd Thursdays, 7:00 PM, Calaveras County Water District Board Room. Supports the Commodore PET, VIC, 64, Plus/4 C-16 & 128. Call: Larry Anderson, 754-5530.

**North Valley Chapter of 64/More Commodore UG.** Meetings: 2nd. Sat. BBS (408) 946-6154.

**PLUG (The Plus/4 Users Group).** No regular meetings. Over 800 members internationally. Write to P.O. Box 1001, Monterey, CA 93942 for info.

**San Jose Chapter of 64/More Commodore UG.** Meetings: 1st. Sun. BBS (408) 946-6154.

**Silicon Valley Commodore Club.** Meetings: 4th Wed. 7 PM Hewlett-Packard, 5301 Stevens Creek at Lawrence & 280. C-64, C-128, & Amiga.

### dBASE

**dBASE Users Group of Marin & Northbay.** Meetings: monthly, call (415) 488-0342 for info. Open membership, beginners through developers.

### DATAEASE

**Bay Area DataEase Users Group.** Meetings alternate between San Francisco and Palo Alto. Contact Kermit Carter at (415) 945-7817 for info.

### DYNABYTE

**Dynabyte - Tahoe City Dynabyte Users Group.** Swap, buy/sell - boards, parts, units. Write to Drawer 2629, Olympic Valley, CA 95730 for info.

### EAGLE

**Eagle Computer Users Group.** Meetings: 2nd Sat. 9:30-12 noon Tandem Computer H.R. Training Rm., N. Tantau Ave., Cupertino.

### EASYTRIEVE

**Easytrieve Plus Users Group.** Next meeting: June 14, Hyatt Oakland. Call Debbie at Pansophic, (415) 573-7100. All users welcome.

### EPSON

**Epson Users of San Francisco Bay Area.** Meetings: 1st Thurs. 7-10 PM Fort Mason, Bldg. C, Rm. 216, San Francisco, CA. For users of Epson (QX, Equity, PX-8). Presentations, support network, newsletter, public domain software.

### FIRST PUBLISHER

**First Publisher User Group.** Members make up 8 1/2 x11 formats for newsletters & tip sheets. $35 annual membership. Contact Raul Ibanez (415) 550-0785.

### FORTH

**Forth Interest Group of Silicon Valley.** Meetings: 4th Sat. 1 PM Oak Room, at Hewlett Packard, on Pruneridge in Cupertino. Call George Shaw at (415) 276-5953 for info.

**Forth Interest Group, North Bay Chapter.** Meetings: 2nd Sat. 1 to 5 PM South Berkeley Community Library, corner of Russell and Martin Luther King Junior Way. One block north of Ashby BART station. Contact George Shaw (415) 276-5953.

### FOXBASE+

**FoxBase+ User Group.** PO 20607 Oakland, CA 94620. New group now forming. Call Rachel Cohen, (415) 465-3570.

### GAVILAN

**Gavilan User Group.** Meetings: 2nd Thurs. 7 PM Lockheed Bldg. 162. Cal (408) 379-2774 for info.

### IBM AND COMPATIBLES

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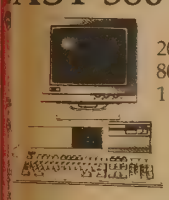

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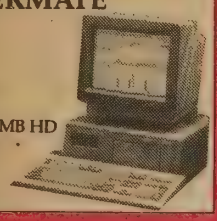

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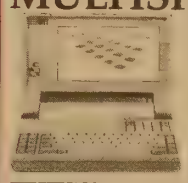

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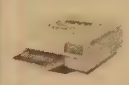

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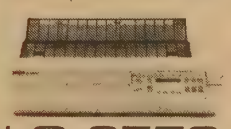

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**Beginners SIG/SFPCUG.** Meetings:3rd Mondays, 7 pm, Chancellor's Conf. Rm., UCSF, 3333 California St., SF. Call: (415) 211-9166.

**C Language SIG/SFPCUG.** Meetings: 2nd. Mondays, 7 pm, Kam's Rest., 2068 Center St., Berkeley. Call: Dan Baumbach, (415) 457-0729.

**Clipper SIG/SFPCUG.** Meetings: 4th Mondays, 7 pm, Rm. 1, Bldg. A, Fort Mason Center, SF. Call: Michael Palladino, (415) 751-2719.

**Columbia SIG/SFPCUG.** Meetings: 3rd Mondays, 7 pm, Chancellor's Conf. Rm., UCSF, 3333 California St., SF. Call: Dennis Tye. (415) 566-0587.

**CUE Club.** MS-DOS machines. SIGs for other computers. BBS:(209) 239-9853. For more info call (209) 858-4401.

**DataPerfect SIG/SFPCUG.** Meetings: 2nd Mondays, 7 pm, Kam's Restaurant, 2068 Center St., Berkeley. Call: Christy Quinn (415) 644-1855.

**dBase SIG/SFPCUG.** Meetings: 3rd Thursdays, 7:30 pm, 6 No. San Pedro Rd., San Rafael. Call: John Stephenson, (415) 488-0342.

**Desktop Publishing SIG/SFPCUG.** Meetings: 4th Tuesdays, 7:30 pm, 179 Parnassus Ave., SF. Call: Phil Smith, (415) 566-3648.

**Diablo Valley PC Users Group.** Meetings: Walnut Creek, CA. Write: P.O. Box 8040, #117, Walnut Creek, CA 94596.

**East Bay Fog.** Meetings: Monthly meetings, Apostleship of the Sea, 600 Terminal St., Oakland. Newsletter, BBS. Call (415) 272-9099 for more info.

**Enable SIG/SFPCUG.** Meetings: 2nd Wednesdays, 7:30 pm, Walnut Creek. Call: Sandi Baker, (415) 946-1716.

**Financial SW SIG/SFPCUG.** Meetings: 3rd Mondays, 7 pm, Rm. 1, Bldg. A, Fort Mason Center, SF. Call: Nick Maffei, (415) 668-2456.

**FUNHUG—PC.** Meetings: 3rd Wednesdays, 7:30 pm, Fremont Library, 39770 Paseo Padre Parkway, Fremont, in the Meeting Room. Mainly just the MS and PC DOS world. Send SASE to Russ Fischer, 2792 Arlington Place, Fremont 94555.

**IBM & Compatibles Users Group (ICUG).** Meetings: A mail-based user group with possible meetings. Not for PCjrs. $8/yr. Write: Dan Tuma, 30 Arjang Ct., Alamo, CA 94507-2041.

**IBM Compatible Users Group.** Meetings: monthly, call (415) 969-6916 for info 7-10 PM.

**Kay+Fun Peninsula Computer Club.** Meetings: 2nd Thursdays, 7:30 PM. Social Room, 222 Laurel St., San Carlos. CP/M + DOS library. BBS: (415) 572-8219.wCall: 593-9981.

**Lotus SIG/SFPCUG.** Meetings: 3rd Mondays, 7 pm, Chancellor's Conf. Rm., UCSF, 3333 California St., SF. Call: Jerry Stern, (415) 282-4100.

**Lotus SIG/SFPCUG.** Meetings: 3rd Mondays, 7 pm, Rm. 1, Bldg. A, Fort Mason Center, SF. Call: Jerry Stern, (415) 282-4100.

**Marin-Sonoma PC Users Group** (MSPCUG). Meetings: Last Tuesdays, Tamalpais Ave. & 3rd Ave., San Rafael Whistlestop Bldg. Call: (415) HAWK.

**Mid-Peninsula IBM-Club.** For IBM employees only. Call Scott Maiden for info: (415) 855-4509.

**Modula-2 SIG/SFPCUG.** Meetings: 3rd Thursdays, 7:30 pm, Call: Richard Lesnick, (415) 398-3587.

**NewViews SIG/SFPCUG.** Meetings: 4th Mondays, 7 pm, 179 Parnassus Ave., SF. Call: G. Watson, (415) 398-3587.

**OtherPerfect SIG/SFPCUG.** Meetings: 2nd Mondays, 7 pm, Kam's Restaurant, 2068 Center St., Berkeley. Call: Quisty Quinn, (415) 644-1855.

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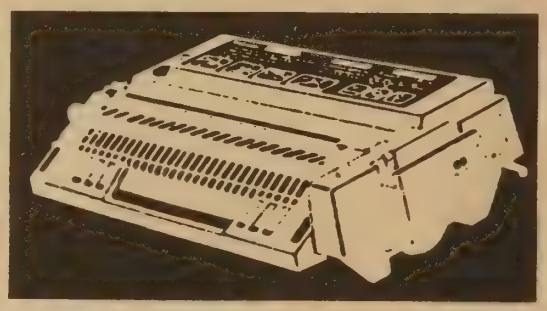

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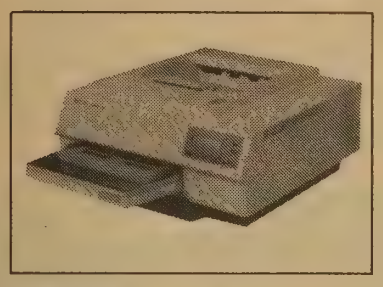

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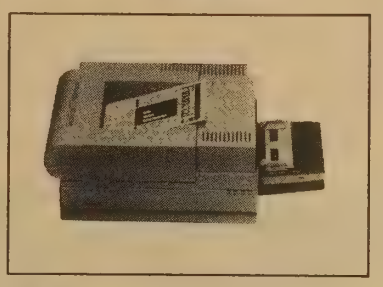

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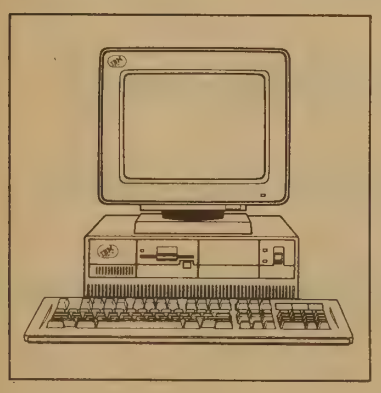

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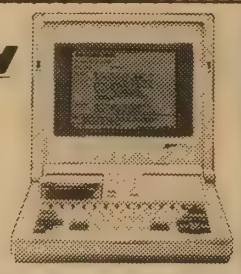

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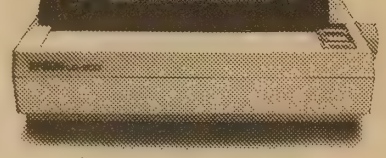

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**Sacramento PC User Group.** Meetings: For information call Jackie Janssen at (916) 383-6900.

**San Francisco Computer Society.** Meetings: 1st Mon. 7:00 PM. Homestead S&L, 5757 Geary Blvd., San Francisco. MS-DOS machines, Osborne, Kaypro, Morrow. Call Ralph Gallagher 929-0252.

**San Francisco PC Users Group.** Meetings: 3rd Mondays, 8 pm, Rm. 1, Bldg. A, Fort Mason Center, SF. Call: (415) 221-9166. BBS: (415) 621-2609.

**San Francisco PCjr Users Group (SFPCjrUG).** Meetings: First Sundays. 7:30 PM, Homestead Savings, 22nd Ave./ Geary, San Francisco. Demonstrations and discussions, club library, disks for sale. Call: John King, 472-7035

**Santa Cruz Computer Society.** Meetings: 3rd Thursdays. 7 PM, Santa Cruz County Office of Education, 809 Bay Avenue, Suite H, Capitola. Call: 479-1180.

**Silicon Valley Computer Society.** Meetings: 4th Wed. 7:30 PM Oak Room, at Hewlett Packard, on Pruneridge in Cupertino. Call Kent Stafford for info at (408) 286-2969.

**Silicon Valley FOG.** Meetings: 3rd. Wed. 7:30 PM Saratoga Community Library, 13650 Saratoga Ave.

**Solano Community PC Users Group.** Meetings: 3rd Monday, 7 PM, Fairfield High School.

**Solomon User Group Of Silicon Valley.** Meetings: Wednesday, August 10, 6:30 PM, Conveyor And Storage Dynamics, 2581 Leghorn St., Mt. View. Call Grihalva Associates, 39899 Balentine Dr., Suite 175, Newark, CA 94560; (415) 659-1515.

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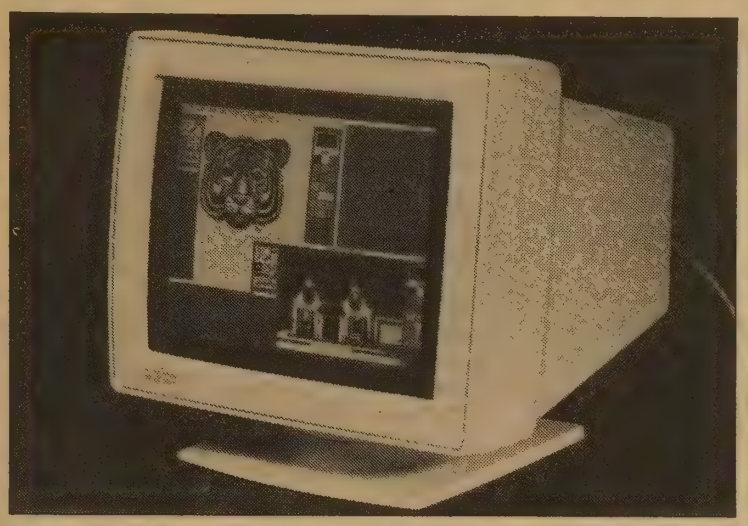

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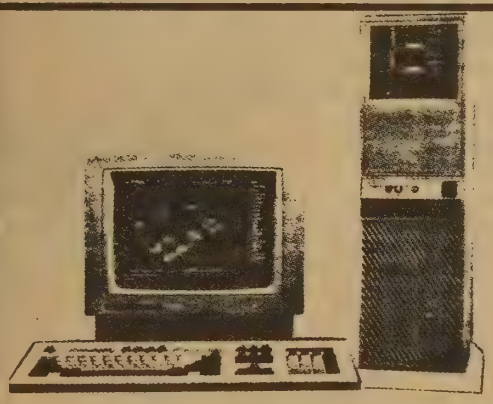

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**WordPerfect SIG/SFPCUG.** Meetings: 3rd Mondays, 7 pm, Chancellor's Conf. Rm., UCSF, 3333 California St., SF. Call: Debbie Foster, (415) 285-4534.

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**BAKUP.** Meetings: 3rd Tuesdays, 7:30 pm, Albany Senior Center, 846 Masonic Ave., Albany. Call: Bob Athey, (415) 526-3541.

**Kay+Fun Peninsula Computer Club.** Meetings: 7:30 PM, Social Room, 222 Laurel St., San Carlos. CP/M + DOS library. BBS: (415) 572-8219. Call: 593-9981.

**San Francisco Computer Society.** Meetings: 1st Monday, 7:00 PM, Homestead S&L, 5757 Geary Blvd., San Francisco CP\M and DOS machines. No BBS. Call Ralph Gallagher, (415) 929-0252 for information.

### MACINTOSH

**Berkeley Macintosh User Group (BMUG).** Meetings: every Thurs. 6 PM Physical Sciences Lecture Hall, UC Berkeley Campus. SIG meetings on Mondays, Tuesdays & Wednesdays. Call for this week's topic. (415) 849-9114. BMUG, 1442A Walnut St., #62, Berkeley, CA 94709.

**Christian Macintosh User Group, San Francisco Chapter.** Meetings: 2nd Thurs. San Francisco. Newsletter and support available. Contact Rick Thrasher at (408) 437-1913. Bible Study and DTP SIGS.

**Christian Macintosh User Group, Silicon Valley Chapter.** Meetings: 1st Thurs. San Jose. Newsletter and support available. Contact Rick Thrasher at (408) 437-1913.

**Diablo Valley Apple Users.** Meetings: 1st & 3rd Fri. 7 PM Willow Creek Ctr., 1026 Mohr Lane, Concord, CA. SIG's meet monthly. Featuring library of pub. domain software & club's DOM's. Newsletter, demos, group buys hard/software.

**EBMUG (East Bay Macintosh Users Group).** Meetings: 3rd Tuesdays, 7:30 pm, 724 Allston Way (@4th) near University Ave., Berkeley. Members receive free PD software. Bring blank disk. Meetings open to everyone. Call: Terry Pennington, (415) 486-0147.

**Mac Diablo Users Group (MDUG).** Meetings: 3rd Tues., Community Room, Glendale Federal Savings, 3101 Crow Canyon Road, San Ramon.

**MacCruisers — Santa Cruz.** Meetings: 2nd Wed. Jade Street Community Ctr. at 45th Ave., Capitola, CA.

**MacNexus — Sacramento's Macintosh Users Group.** Meetings: 3rd Thurs. 6:30 PM Call (916) 446-2411 for info. 350 members, but still informal. Extensive public domain collection.

**Silicon Valley Computer Society's Macintosh SIG.** First meeting: September 21, 7:30 pm, 6th floor offices of Arthur Young and Co., Mitsubishi/Plaza Bank Building, 55 Almaden Blvd., San Jose. A forum for shared ideas. First meeting will be a demonstration of HyperCard. Other demos are planned for future meetings. Call: Dennis Dawson, (408) 947-5550.

**The Bay Area MacForum.** Meetings: 3rd Saturdays. Daly City Library, Serramonte Branch. Call: 771-5830.

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**Tri-Valley Macintosh User's Group (TMUG).** Meetings: 1st Thursdays, 7 pm, 4695 Chabot Dr., Rm 114, Hacienda Business Park, Pleasanton. Newsletter, large P/D library. Call: James (415) 426-8756 eves, Mike, (415) 838-6165.


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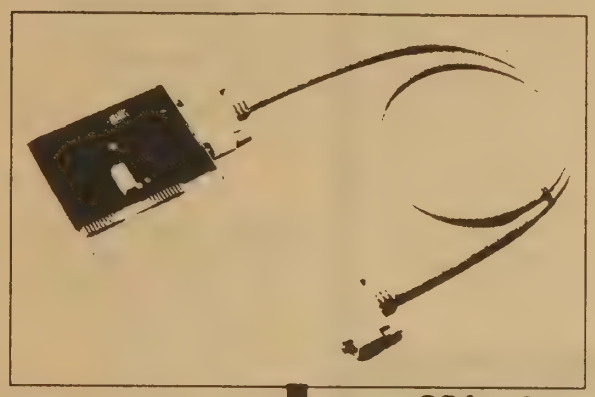

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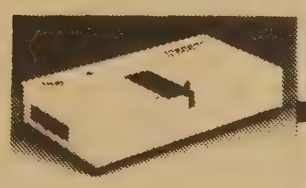

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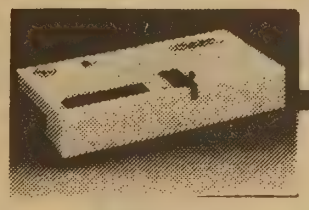

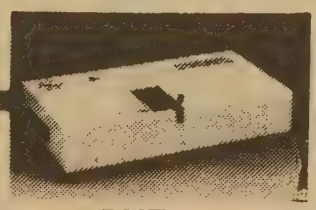

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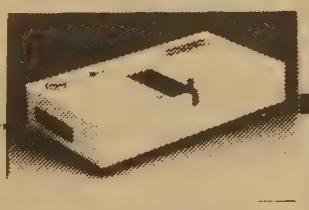

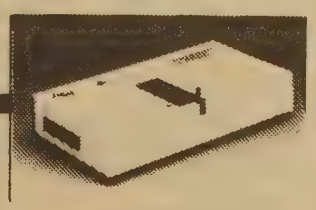

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**Microsoft Word Users Group.** Meetings: 4th Mondays, 7:30 PM - 9:30 PM, Hewlett Packard-Cupertino-Oak Room Bldg., 48 Pruneridge, 100 yds. est of Wolfe off Hwy 280. August 22: Chris Donner, Pres. Access Softek on DRAGNET for Text Retrieval and Management. Call: Bill West, 356-8805.

**Mirosoft Word SIG of the SVCS.** Meetings: 4th Mon. 7:30 PM Hewlett—Packard, Oak Room, Pruneridge at Wolfe, Cupertino. Contact Bill West (408) 356-8805 or Hunter Jackson (4080 446- 4097.

### MINDSET

**San Francisco Mindset Users Group.** Meetings: 2nd Thursdays, 7 pm. Call: (415) 626-4240.

### MORROW

**BAMDUA (Bay Area Micro Decision Users Assoc.).** Meetings: 3rd Tues. 7:30 PM Albany Senior Center,846 Masonic Street (just north of Solano) in Albany, CA. Voice:(415) 534-4257. BBS:(415) 654-3882. P.O. Box 5152 Berkeley CA 94705.

**San Francisco Computer Society.** Meetings: 1st Mon. 7:00 PM. Homestead S&L, 5757 Geary Blvd., San Francisco. MS-DOS machines, Osborne, Kaypro, Morrow. Call Ralph Gallagher 929-0252.

### NEC

**Bay Area NEC/100 Users Group.** Meetings: 1st and 3rd Thur. 7:30 PM Room 209C at College of Alameda. For those interested in laptops, especially Kyocera 80C85 type (NEC 8201a, Radio Shack Model 100 or 102. Call (415) 658-1889.

### NOVELL

**Novell Users Group - Silicon Valley.** Meetings: 3rd. Wed. 7 PM 1170 Morse Ave., Sunnyvale, CA.

### ORACLE

**Northern California Oracle UG.** Meetings: Call (408) 738- 8330 for info. meets every 3 months at different Bay Area locations. Newsletter published between meetings.

### OSBORNE

**San Francisco Computer Society.** Meetings: 1st Monday, 7:00 PM, Homestead S&L, 5757 Geary Blvd., San Francisco. CP\M and DOS machines. No BBS. Call Ralph Gallagher, (415) 929-0252 for information.

### PARADOX

**San Francisco Paradox Users Group.** Meetings: 3rd Wednesday, call Jeffrey Edwards Co. for information, (415) 543-6227.

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**TRS Nybblers.** Meetings: 2nd Fri. 8 PM Chabot College, 25555 Hesperian Blvd., Hayward. MS-DOS, CP/M, laptops, Mod 1, 3, 4, Mod 2, 12, 16, 6000. Bud Gallagher (415) 522-5960 or Bruce Jarvis (415) 846-3575.

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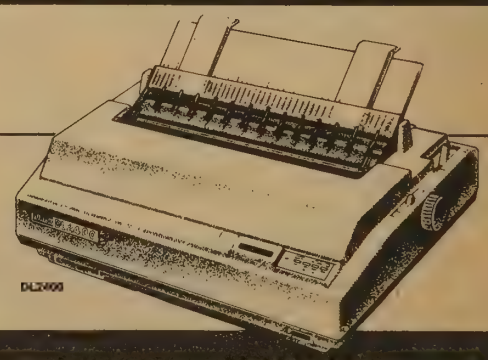

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**HP16C Computer Scientist Calculator**. Never used. $45/ bo. (415) 683-3236 (days). (408) 270-0126 (evenings).

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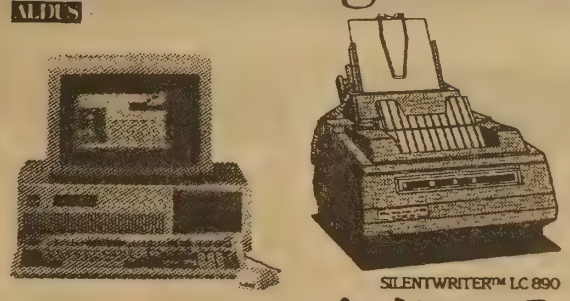


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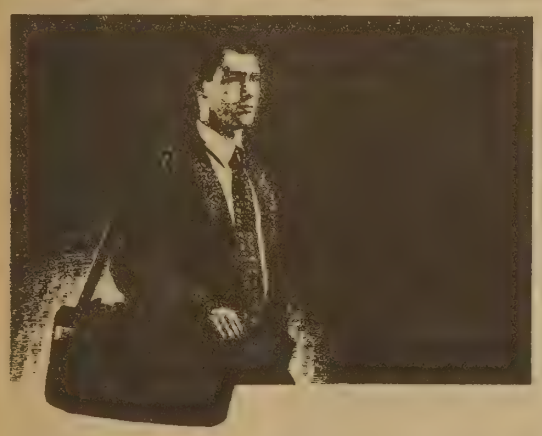

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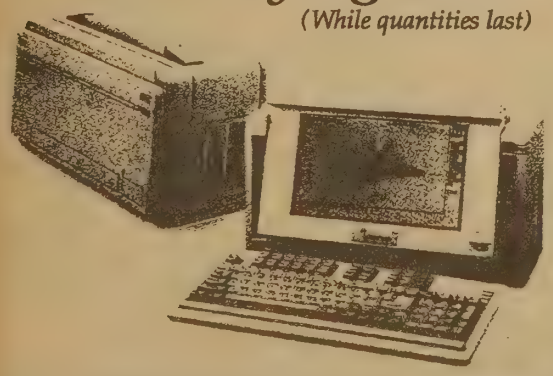

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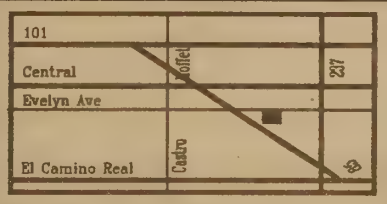


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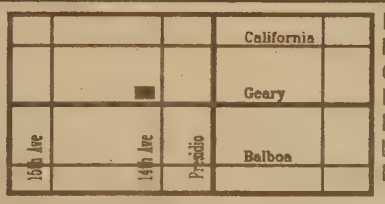


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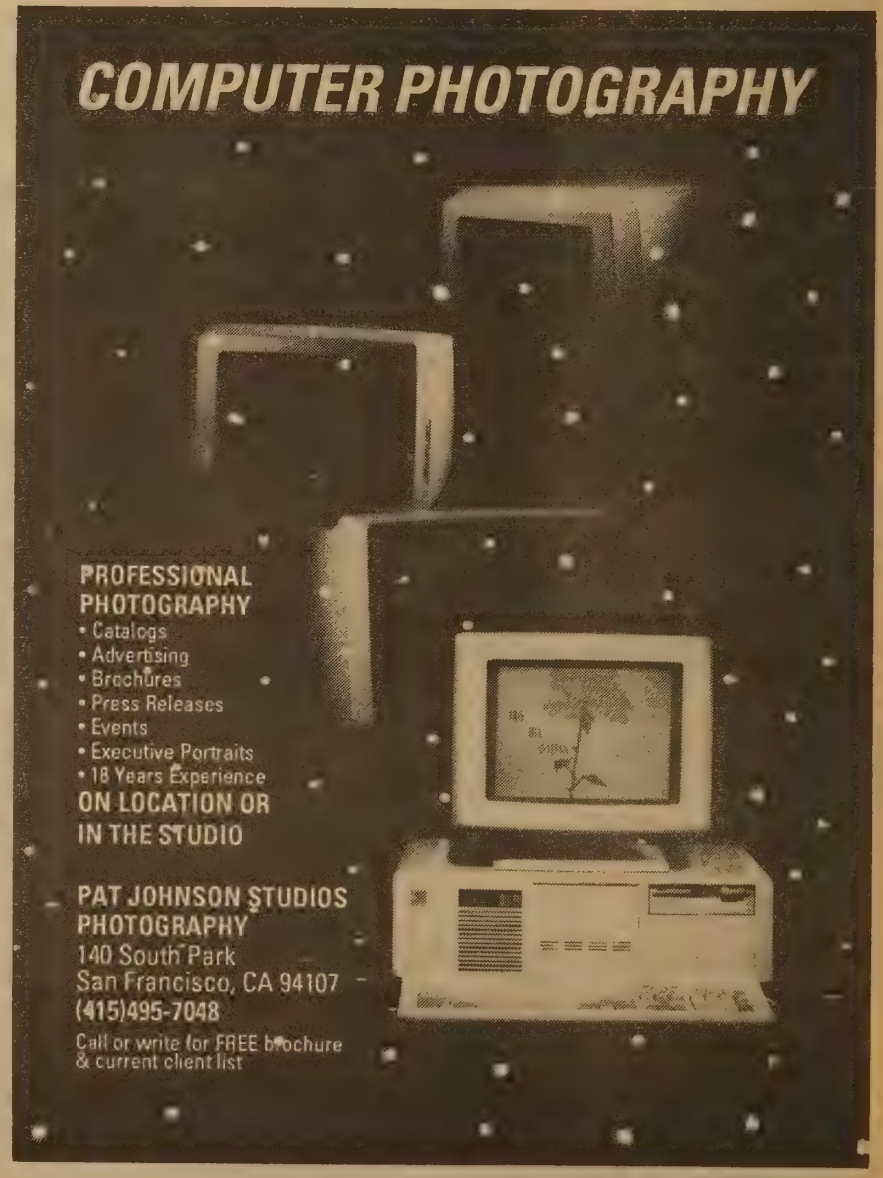

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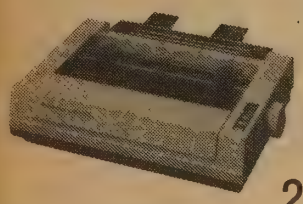

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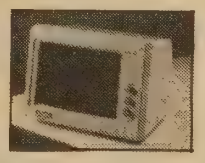

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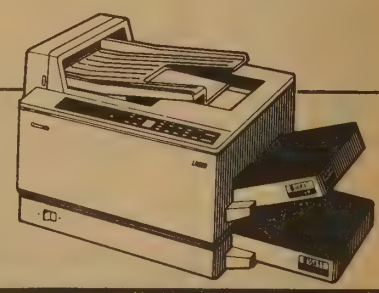

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# DVORAK'S LAST COLUMN

BY JOHN C. DVORAK

*The Debate Continues*

# Is There Such A Thing As A Woman's Computer?

## *Here's What A Woman Thinks. Is She Serious Or Kidding?*

A few months back I ran a letter from a guy who discussed the relative lack of interest women have with computers. He suggested a specialized "woman's computer." This brought in a ton of mail from outraged feminists and others who apparently read the letter with interest.

Because so many women wrote in, I figured that this was a hot topic, although most complained. One letter stood apart, though. Instead of taking offense, Suzanne Miller, from the South Bay suburbs, took a cue and saw the letter as an opportunity to describe the "woman's computer" from a female perspective. Here's what she says:

*I'm delighted that somebody recognizes the fact that a large segment of our population has been ignored by the computer age.*

*I began using a computer with my early primary students in 1979. My enthusiastic praise of the merits of computers to other women was countered with tolerant smiles and comments ranging from "I don't have your mechanical ability" to "I don't have time to sit down to learn to use the silly thing; besides, what use are they to me?" This from women who turn out delicious meals cooked from start to finish on their programmable microwave ovens, make professional-looking clothes on their push-button sewing machines, run load after load of wash while off-handedly selecting water temperature, washing/drying times, water levels, etc., and own food processors that can slice, dice, chop and knead bread dough at the touch of a finger.*

*So I looked at my own home use of a computer and found that I use it to preview school software and use a word processor. The latter can easily be duplicated by today's inexpensive typewriters—a fact that has been pointed out to me on numerous occasions.*

*So what do women really want in a computer?*

*1. A time-labor saving device for household chores.*

*2. Simplicity and ease of use.*

*3. Low cost—both hardware and software.*

*Today's woman is busier than ever whether she holds a job outside the home or not. When the computer industry talks glowingly of home use they forget to mention certain important facts: It has to do with time. It takes TIME to learn to use the thing. It takes TIME to figure out how to use each new piece of software. TIME and money are the two things today's woman has in short supply.*

*So take out your notebooks, here's my specifications for my ideal Home Computer; 1) Small and complete—it should cost no more than $300; 2) It must be ready to use by just plugging it in and turning it on; 3) The screen can be small, but should be able to hold the same information found on a 3x5 file card in large, easily readable letters; 4) It should have a short simple book of directions; 5) It should contain some plug-in ports for later add-on peripherals. Examples: a small adding-machine tape to print out lists, an electronic pen to make on-screen selections, an optical scanner to read and input data (such as recipes); 6) A built-in or easily attached hard cover to keep out dust and keep out the prying eyes of company; 7) Color choices to fit my home's decor; 8) Inexpensive software ($10-$20) available in easily accessible places such as supermarkets and department stores.*

*What tasks do I want my dream time/labor saving HOME computer to perform? I would like something to help me with all those time-consuming handwriting jobs, such as lists, memos, appointments, etc., that I do daily. Some suggestions are: a master calendar where I can call up any day and quickly put in Billy's doctor's appointment or Aunt Mary's birthday and be able to see a week or month at a glance; a master grocery list to check off needed items for my next trip to the store; a "jobs to do" master list; a check off for travelling list; Christmas cards list; a family records list.*

*A friend suggested having a voice activated machine so she could tell the computer to "put carrots on the shopping list" while her hands were busy peeling potatoes for dinner.*

*So there you have it, gentlemen. The new washing machines can't pick up the dirty clothes and sort them before washing them, and I haven't seen a robot that will clean the toilets while I take Billy to the doctor. But perhaps I have given you some ideas that may make you millionaires. A little research in household management may be a good investment. The results could open new worlds—for all of us.*

*—Suzanne M. Miller*

***"What tasks do I want my dream time/labor saving HOME computer to perform? I would like something to help me with all those time-consuming handwriting jobs, such as lists, memos, appointments, etc., that I do daily."***

Is Suzanne's view of the world the same as yours, and would this version of the woman's computer work? I have the sneaking suspicion that many of the hostile Berkeley feminists will find this letter somehow offensive, although, as many of you know, I sure don't want to get anyone riled up. I'll leave it at this unless you, the reader, want this discussion to continue.

---

*John C. Dvorak graduated from the University of California. He is a contributing editor of* PC *magazine and* MacUser, *considered by many to epitomize the contrarian view of things—a charge that he vehemently denies. Dvorak's motto is: If you have nothing nice to say, then don't say anything at all.*

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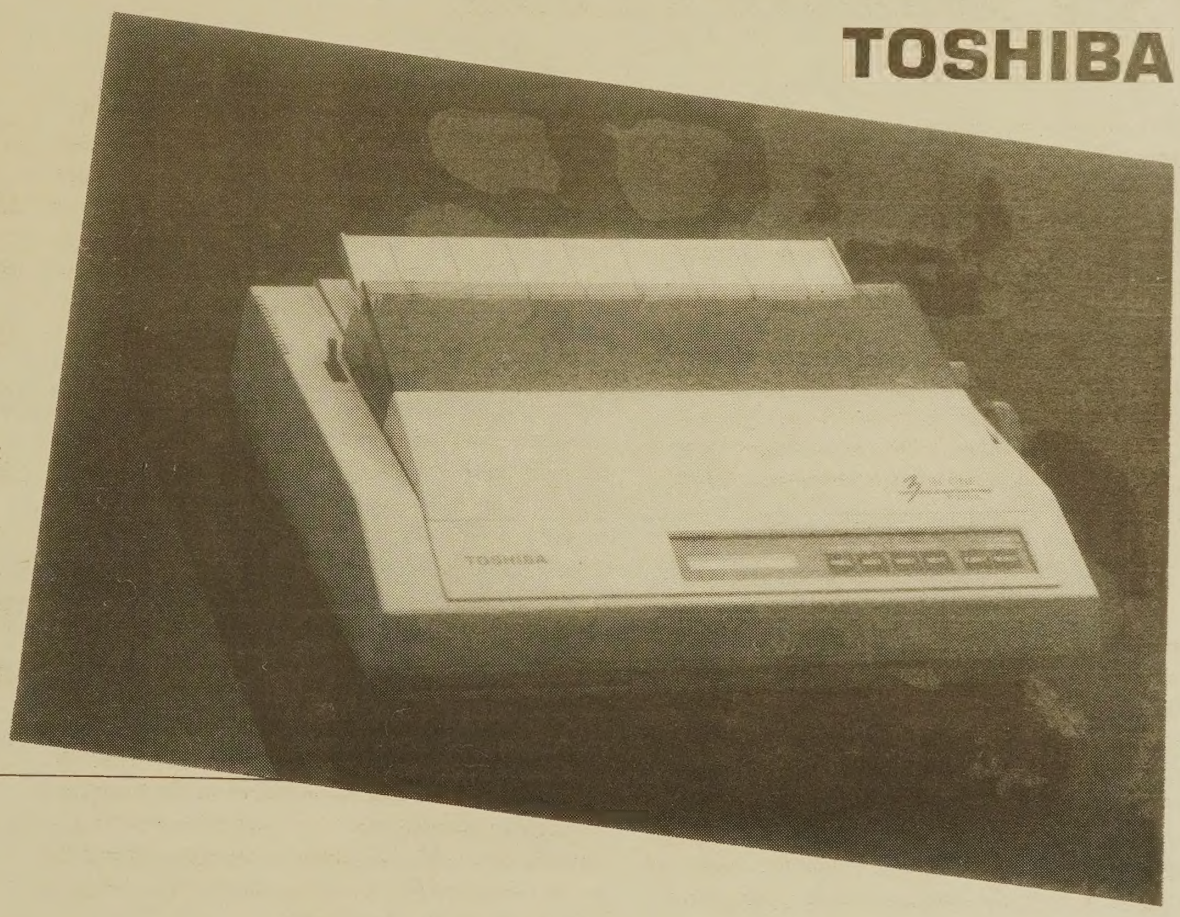


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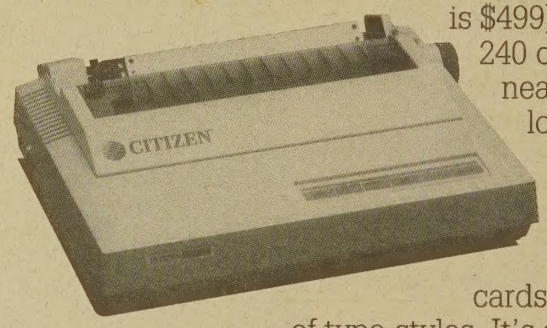


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